progressive
policy
institute

1200 New Hampshire Ave., NW
Suite 575
Washington, DC 20036
http://www.progressivepolicy.org

Tel 202 525 3926
Fax 202 525 3941

February 4, 2015

Dear FCC:

We would like to submit the attached articles and papers to docket 14-28.

Sincerely,

Progressive Policy Institute

ppi

The Washington Post

November 14, 2014

Obama's plan to regulate the Internet would do more harm than good

Michael Mandel

President Obama's call this week to regulate the Internet as a public utility is like pushing to replace the engine of a car that runs perfectly well. The U.S. data sector — including wired and wireless broadband — is the envy of the world, administering a powerful boost to consumer welfare, generating high-paying jobs and encouraging tens of billions of dollars in corporate investment. Indeed, the prices of data-related goods and services have dropped by almost 20 percent since 2007.

Putting the Federal Communications Commission in charge of regulating broadband rates and micromanaging Web services, as the president proposes, would slow innovation and raise costs. It would be bad news for the economy. It would also be a serious misstep for the Democratic Party, marking a retreat from market-based, pro-competition policies pioneered by President Bill Clinton in the 1990s.

The issue here is how best to ensure an open Internet, in which big and small companies alike have unfettered access to customers. After the courts threw out the old open Internet rules in January, virtually all concerned parties agreed the United States needed strong regulations to prevent blocking or discrimination online, to require real transparency for network-management policies by Internet service providers and to ban paid prioritization that could divide the Internet into fast-lane "haves" and slow-lane "have-nots."

The debate is over the best policy road to take in enacting these rules. One path — using Section 706 of the Telecommunications Act of 1996 — would allow the FCC to enact strong rules and penalize Internet service providers who impede anyone's access to the bounty of the Web, while preserving the freedom to innovate and deploy new technologies.

The other road — which relies on Title II of the Communications Act of 1934 — would resuscitate decades-old public-utility regulations and enable the FCC (and a new layer of state agencies) to regulate prices and micromanage Internet services. This is the road back in time that the president endorsed.

Each year, the Progressive Policy Institute (PPI) prepares an "Investment Heroes" report identifying the companies that are investing the most in the United States. In 2013, the telecom and cable industry led the list with $46 billion in investment. Compare that with Europe, where Title II-style regulations have suffocated broadband innovation and investment. Indeed, even the president admitted in his announcement that "network investment remained strong" under the current rules.

This is not an industry that needs a new approach — and especially not a policy prescription borrowed from the failed monopoly-style regulations of the past. A PPI analysis of government statistics shows that the data sector has been the main force driving gains in consumer welfare since 2007. Consumption of data-related goods and services per person has risen by 48 percent since the recession started seven years ago. By comparison, the real per capita consumption of all other goods and services is up by only 0.9 percent over the same stretch. The number of computer and mathematical workers has risen by 35 percent since October 2007. These are high-paying jobs.

If Title II were the only way to enact strong open Internet rules and protect consumers, I would be the first to support it. However, the more reliable Section 706 approach, suggested as a possible source of regulatory power by the court that struck down the last set of open Internet rules, provides ample authority to pass effective, market-based rules that give us the best of both worlds — strong consumer protections within a pro-market framework. Indeed, many experts believe Section 706 provides a stronger foundation to restrict anti-competitive "paid prioritization" deals because Title II expressly allows for whatever counts as "reasonable" discrimination among utility services and customers.

Meanwhile, Title II goes far beyond simple open Internet protections and could impose thousands of obsolete or harmful rules and regulations on the entire Internet ecosystem (not just broadband companies, but potentially application and content firms as well). The president suggests these destructive rules could simply be waved away using the FCC's power to "forbear" from applying its own rules. But that's fool's gold. Forbearance proceedings are lengthy and complex with uncertain outcomes, and they would provide yet another forum for special interests to litigate their pet issues. The unpredictability and chaos of extended forbearance cases could do as much damage to investment and the Internet economy as Title II itself.

Title II could turn out to be a tremendous drag politically for the Democratic Party as well. Putting the government in charge of Internet service will just make the Democrats the scapegoat when anything goes wrong. That's not a good way to avoid a repeat of the 2014 election.

For economic, policy and political reasons, Title II is the wrong road for the FCC — and the wrong road for our country. The FCC would be wise to exercise its independent policymaking authority and ignore the president's backward-looking misstep.

Investment Heroes: Who's Betting on America's Future?

progressive policy institute ppi

BY DIANA G. CAREW AND MICHAEL MANDEL

JULY 2012

American voters are finding it hard to get excited about this year's presidential election. Job growth is slow. Economic growth is slow. Real wages have been essentially stagnant since 2009. It's the same old story as when recovery began three years ago. We are in an atmosphere of economic uncertainty. Voters—swing voters especially—are looking for news that will boost their confidence from all the economic doom and gloom going around. We are a country that needs to hear more (if not have more) economic successes.

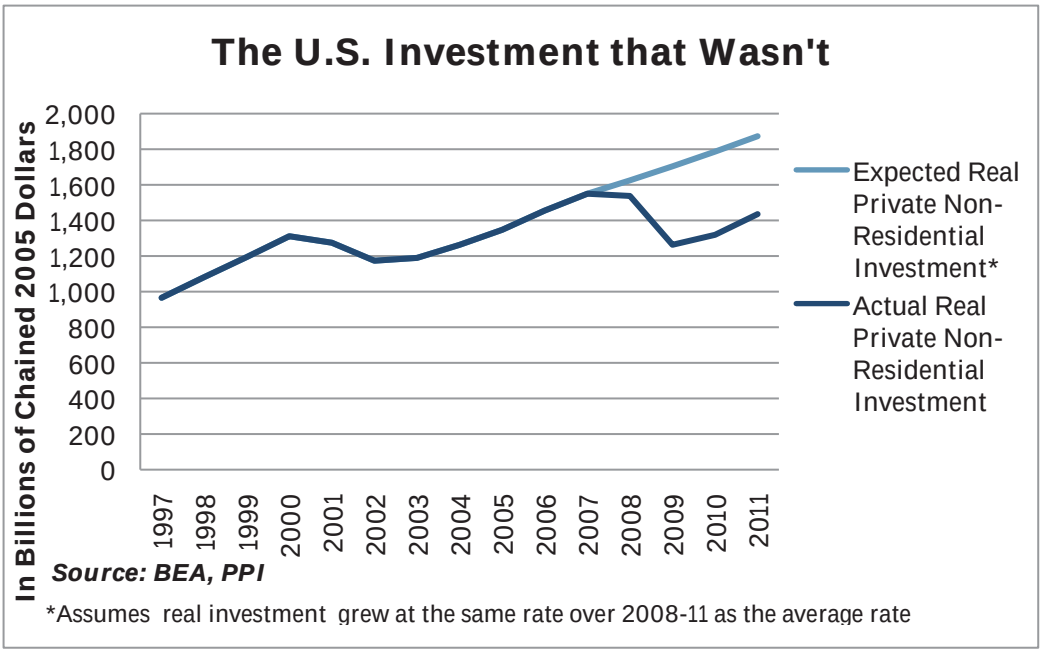
Domestic business investment generates growth, raises productivity, increases wages and creates jobs for Americans.

Such successes begin at home with investment—business investment, government investment, and household investment. Government has to invest in infrastructure, education, and research. Households have to invest in their own human capital. And businesses have to invest in buildings, equipment, and software. All are essential—but in this report we will focus on business investment. Domestic business investment generates growth, raises productivity, increases wages and creates jobs for Americans. It can span the gamut from new office buildings to improved production lines to faster communications equipment to deeper natural gas wells.

Unfortunately, U.S. business investment tanked during the Great Recession, and has yet to recover. The graph below shows the extent of the drop-off—in 2011, non-residential investment remained more than 7% below 2007 levels, adjusting for prices. By comparison, personal consumption in real terms was higher in 2011 compared to 2007. We find ourselves in an investment drought, not a consumption drought.

Equally as important, before the recession companies were expanding their domestic investment at a rapid pace. In fact, we estimate there would have been a total of $1.4 trillion more in non-residential business investment over 2008-2011, in 2005 dollars, had business investment continued to grow at the same average annual rate in the ten years before the recession (4.8% over 1997-2007). That extra investment could have gone a long way toward creating jobs, boosting productivity, and enhancing U.S. competitiveness.

The decline and lackluster recovery in business investment has a wide range of causes, including globalization, regulatory barriers, and weak demand. Many companies are investing overseas rather than in the United States. Multiple layers of regulation, even if well-intentioned, have the impact of discouraging capital investment and innovation.[1] And the continued weakness in demand at home makes it difficult to justify building new factories. But no matter what the reason, this weakness is having an adverse effect on economic growth and is one of the main reasons behind the job drought.



That's why PPI wants to highlight those companies that are still investing domestically in buildings, equipment, and software. Using publicly available financial reports, PPI constructed a list of the top 25 nonfinancial U.S.-based companies ranked by their U.S. capital spending in 2011. In many cases this required detailed calculations and assumptions, since companies often report global capital spending without breaking it down by country. Financial companies were excluded because they do not publicly report their capital expenditures. (A more detailed explanation of our methodology can be found later in this memo.)

The fact that telecom and energy companies find it the most financially worthwhile to invest large volumes in America is quite telling about which sectors are doing well.

PPI calls these companies "Investment Heroes" to make a key point: the U.S. economy is at its best—in terms of growth and job creation—when companies and workers are partners with the same objectives. Half of the leading companies are telecom and energy, but the list also includes tech, retail, automotive, and entertainment companies.

The fact that telecom and energy companies find it the most financially worthwhile to invest large volumes in America is quite telling about which sectors are doing well. Telecom companies like AT&T, Verizon and Comcast are making huge

investments in broadband infrastructure. Energy companies like Exxon are investing in the discovery of new sources of oil and natural gas.

Together, these top 25 companies invested about $136 billion in the U.S. during 2011, according to our estimates. The list below shows PPI's "Investment Heroes" of 2012. (A list of the top 25 companies excluding energy can be found at the end of this memo.)

Investment Heroes: Top 25 Nonfinancial Companies by U.S. Capital Expenditure*

Rank	Company	U.S. Capital Expenditures ($bns)
1	AT&T**	**20.1**
2	Verizon Communications**	**16.2**
3	Exxon Mobil	**11.7**
4	Wal-Mart	**8.2**
5	Intel	**7.4**
6	Occidental Petroleum	**6.2**
7	ConocoPhillips	**5.6**
8	Comcast**	**5.3**
9	Chevron	**4.8**
10	Southern Company**	**4.5**
11	Hess	**4.4**
12	Exelon**	**4.0**
13	Ford Motor	**3.9**
14	General Electric	**3.7**
15	Enterprise Product Partners**	**3.6**
16	Sprint Nextel**	**3.1**
17	Walt Disney	**3.0**
18	FedEx	**2.9**
19	Time Warner Cable**	**2.9**
20	General Motors	**2.8**
21	Target	**2.5**
22	IBM	**2.5**
23	Chrysler Group	**2.5**
24	Google	**2.2**
25	Apple	**2.0**
Total		**136.2**

*Universe includes nonfinancial Fortune 150 companies from 2011; financial reporting from FY11
**Reported to have U.S. operations only; may include a small amount of non-U.S. investment

Source: Company financial reports & filings for FY2011 and PPI estimates. Total includes capital expenditures in plants, property, and equipment, and investment in exploration for energy companies. Totals do not include R&D.

There are a few qualifiers we need to insert here. First, non-U.S. based companies were not included in this list because of data comparability issues. Certainly there are non-U.S. based companies like BP and Toyota that would have made the list if included—BP invested $8.8 billion and Toyota $2.7 billion in the U.S. in 2011. We anticipate constructing a list of non-US investment heroes sometime soon.

Second, we acknowledge that many of the companies on our list have been criticized for a wide variety of issues, including broadband pricing, environmental impacts, privacy concerns, and low tax payments. Indeed, in the dynamic, fast-changing global economy in which we increasingly find ourselves, the raising of such issues is inevitable and healthy. We further acknowledge that some companies on this list have large amounts of cash in reserves and could conceivably be investing even more domestically.

But without minimizing these potential problems, we don't want to discount the positive impact of these companies are having in terms of creating U.S. jobs and generating economic growth through their U.S. investments. Just as two companies will do business even while they are suing each other—Apple and Samsung come to mind—we have to be willing to applaud domestic investment even if the companies are not perfect.

AT&T leads the pack, with Verizon, Exxon-Mobil, Wal-Mart, and Intel rounding out the top five.

Third, a company's absence from the list does not mean they did not investment domestically in 2011. We cut the list at the top 25 companies. Mainstay U.S. companies like DuPont and Dow Chemical are investing domestically, just not as much as the other companies on the list.

As for the list, we found AT&T leads the pack, with Verizon, Exxon-Mobil, Wal-Mart, and Intel rounding out the top five. In fact, telecom companies comprise 5 of the top 25 "Investment Heroes." And it's easy to see why. The exponential growth in consumer demand for cable and wireless data services makes it both a necessity and an incentive for these companies to invest in building out their service capabilities. Investment is what led to development of the latest high-speed 4G networks, estimated to be 50% more efficient in streaming wireless data than its 3G predecessor.[2]

What's more, the commitment of these telecom companies to investment in wireless infrastructure, cable communications, and processing equipment is a good example of how investment can have important spillover benefits. By using the infrastructure developed and maintained by telecom companies, companies that develop software applications for smart devices along with companies that provide Internet services—like Facebook and Twitter—are able to innovate and get those innovations to consumers quickly. Because of the broadband networks in place these non-telecom companies are able to expand their businesses and service offerings.

Intel doubled total capital expenditures in 2011, with three quarters of its total 2011 capital expenditures in the U.S., according to PPI's estimate. In a company filing, Intel credits expanding its network of production facilities, including a $5 billion chip manufacturing facility in Arizona, for the rise in spending.[3] This investment will almost certainly lead to increased production, more jobs, and, as a benefit to consumers, more available hardware for smart device manufacturers like Motorola that use Intel products.[4]

Strong business growth for some of the companies on the list is resulting in investment in company expansion. Apple devoted part of its U.S. investment to developing a second corporate campus in California. And according to a public filing, the company plans to expand its total capital spending to $8 billion in the coming year, up from $4.6 billion in FY11, as it continues with construction. Google reported that its rapid business growth has and will continue to require significant spending on its facilities, data centers, and equipment. These expenditures are exactly the type of organic growth that sustainably lifts up the economy and creates jobs.

Progressives who care about growth and jobs should acknowledge today's investment success stories, whether the company is big or small.

Most of the U.S. capital expenditures by energy companies like Exxon-Mobil and Enterprise Product Partners consisted of production and exploration costs, which includes building out oil and natural gas pipelines and exploratory costs for new drilling sites. In fact, of Exxon's $4.5 billion increase in investment over 2010, almost all ($3.9 billion) was domestic. Occidental increased its U.S. drilling rig operations by 89% over the last year, from 38 rigs up to 72. Despite any environmental concerns, the fact remains that such large amounts of domestic investment by these individual companies have the ability to prop up local area economies while meeting the realities of increased power demand.

Two companies on the list, Disney and Comcast, are also investing in entertainment (Comcast purchased Universal Studios in 2011). Disney reports that $2.3 billion of its total U.S. investment in 2011 went to its domestic theme parks—for example, a $450 million "Cars" themed ride is set to open this month.[5] And new Universal Studios owner Comcast states that it "expect[s] to continue to invest in existing and new attractions at our theme parks." Such investment in property and technology upgrades will not only enhance productivity and create jobs—the type of jobs that could benefit the youth labor force—but it also gives consumers another reason to go out and spend locally.

Finally, it is worth noting that several automobile companies made the list—some of which were memorably part of the consortium of companies that were "bailed out" during the recession. Clearly, we are seeing signs that these companies are now giving back to the economy in a very positive way.

So, what are the takeaways here?

First, sustainable economic growth, job creation, and rising real wages require domestic business investment. That means progressives who care about growth and jobs should acknowledge today's investment success stories, whether the company is big or small. Ensuring the U.S. maintains a business-friendly environment can help facilitate continued domestic investment. The upcoming election season provides an opportunity for progressives to articulate this message and give voters some positive news amidst weak economic growth and bleak jobs numbers.

This is particularly important for President Obama, who needs to reframe the 2012 race as a choice between competing prescriptions for reviving jobs and U.S. competitiveness over the next four years, rather than as a referendum on the past four years. One way the administration can counter Republican claims that it is "anti-business" is to acknowledge America's investment heroes and work with them to shape policies that encourage others to invest more as well.

Second, politicians and policymakers must do their part to encourage more investment success stories. The sluggish recovery in domestic business spending shows there is still room to grow. That means designing policies aimed at encouraging new investment, including tax incentives. Depreciation deductions included in the Tax Relief Act of 2010 and in Small Business Jobs Act of 2010 are set to expire at the end of 2012.[6] If expanded and extended long-term, such incentives would likely be more effective at encouraging investment, as investment is typically part of a long-term strategy.

One way the administration can counter Republican claims that it is "anti-business" is to acknowledge America's investment heroes and work with them to shape policies that encourage others to invest more as well.

Another way to nurture investment is through regulatory improvement—not deregulation, but making sure that the overall impact of multiple levels of regulation doesn't weigh down potential investment excessively. For example, consider the maze of registrations, license approvals, and legal fees associated with starting a new business. Lowering compliance costs for start-ups by reducing redundant regulatory burdens could allow new businesses to invest more of their money in business development and less in legal paperwork. Similarly, smooth, timely, and easy to understand regulatory processes for developing land or building up operations can reassure companies considering a large investment in your area—like amusement park rides—to move forward.

Finally, we need to consider carefully whether there are any investment roadblocks that could be alleviated by targeted government action. For example, the heavy investment in wireless and broadband infrastructure could come to a halt if fears of an impending spectrum crunch become reality. That would affect not just broadband services but everything else that relies on those networks. Adaptive regulatory processes that reallocate unused spectrum quickly and effectively could help ensure telecom investment stays on track.

Regulatory reform also applies to state and local governments.

PPI's list of "Investment Heroes" shows there are still companies across a wide range of industries that continue to invest in the U.S. But there is more we can do. Encouraging other companies to follow the "Investment Heroes" lead would translate to new infrastructure and property development, jobs for millions of Americans, and precious income to U.S. businesses and consumers.

Methodology

To develop this year's list of "Investment Heroes," we started with the 2011 list of Fortune 150 companies, ranked by revenue.[7] We omitted financial companies, of which there were 22, because they do not report on capital expenditures. For each company, we then looked at their fiscal year 2011 annual filing with the SEC for global (gross) capital expenditures on additions to plants, property, and equipment (but not R&D) over the year.

To rank these 150 companies (128 of which were nonfinancial) by U.S. capital spending, we estimated the appropriate share of gross capital expenditures to investment in the U.S. using several different procedures, as appropriate.

- In 7 cases (4 cases on the non-energy list), the amount of U.S. investment was given explicitly in the filing. In those cases that estimate was used.
- In another 8 cases (10 cases on the non-energy list), the company did not break out non-U.S. operations separately, suggesting that they were relatively small (non-material). In those cases we allocated all of the capital expenditures as U.S. expenditures and indicated that on the table. We paid special attention to AT&T and Verizon, the top two companies on our list, neither of which broke out their international investment. Based on our analysis, both companies would retain their top spots under any reasonable set of assumptions.
- For companies that did business internationally, we used the geographic distribution of long-lived assets—plant, property, and equipment—for fiscal years 2010 and 2011, combined with reported depreciation for FY 2011, to estimate domestic capital expenditures.
- Finally, for a small number of companies, the reported change in long-lived assets seems incompatible with reported capital expenditures and depreciation. This can happen because of divestitures and acquisitions, or for a variety of other accounting reasons. In these cases, we estimated domestic capital spending as a share of global capital spending based on the domestic share of the change in long-lived assets (after adding back in depreciation).

Investment Heroes Part II: Top 25 Nonfinancial, Non-Energy Companies by U.S. Capital Expenditure*

Rank	Company	U.S. Capital Expenditures ($bns)
1	AT&T**	**20.1**
2	Verizon Communications**	**16.2**
3	Wal-Mart	**8.2**
4	Intel	**7.4**
5	Comcast**	**5.3**
6	Ford Motor	**3.9**
7	General Electric	**3.7**
8	Sprint Nextel**	**3.1**
9	Walt Disney	**3.0**
10	FedEx	**2.9**
11	Time Warner Cable**	**2.9**
12	General Motors	**2.8**
13	Target	**2.5**
14	IBM	**2.5**
15	Chrysler Group	**2.5**
16	Google	**2.2**
17	Apple	**2.0**
18	Kroger**	**1.9**
19	CVS Caremark**	**1.9**
20	Lowes**	**1.8**
21	Proctor & Gamble	**1.8**
22	DirecTV	**1.7**
23	Boeing**	**1.7**
24	HCA Holdings**	**1.7**
25	Microsoft	**1.7**
Total		**105.5**

*Universe includes nonfinancial Fortune 150 companies from 2011; financial reporting from FY11
**Reported to have U.S. operations only; may include a small amount of non-U.S. investment

Source: Company financial reports & filings for FY2011 and PPI estimates. Totals do not include R&D, only capital expenditures in plants, property, and equipment.

Endnotes

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About the Authors

Diana G. Carew is an economist at the Progressive Policy Institute.

Michael Mandel is the chief economic strategist at the Progressive Policy Institute.

About the Progressive Policy Institute

The Progressive Policy Institute (PPI) is an independent research institution that seeks to define and promote a new progressive politics in the 21st century. Through research and policy analysis, PPI challenges the status quo and advocates for radical policy solutions.

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U.S. INVESTMENT HEROES OF 2013: The Companies Betting on America's Future

BY DIANA G. CAREW AND MICHAEL MANDEL SEPTEMBER 2013

For too long, U.S. policymakers have focused narrowly on boosting consumers' buying power, assuming that the productive end of the economy will take care of itself. Yet the last decade of slow growth shows that debt-driven consumption is not a sustainable strategy for expanding economic opportunity or lifting U.S. living standards. In contrast, a high-growth strategy requires strong investment—private and public—in our nation's productive and knowledge capacities.

Total domestic investment fell drastically during the recession and has yet to fully recover.

It's time for progressives to rebalance the consumption-investment equation. Total domestic investment fell drastically during the recession and has yet to fully recover. A big part of the problem is the public sector. With gridlock in Washington and financial troubles at the state and local level, government real spending on productive assets from highways and bridges to computer equipment, net of depreciation, is down by half compared to the average level of the 2000s.

About the authors

Diana G. Carew is an economist at the Progressive Policy Institute and director of PPI's Young American Prosperity Project. Michael Mandel is the chief economic strategist at the Progressive Policy Institute and the founder of South Mountain Economics LLC.

Investment by the private sector is doing better, but taken as a whole still falls way short of what the country needs to generate jobs and growth. As shown in Figure 1, business investment, outside of housing, is still 20 percent below its long-term trend. There are several reasons why private business investment is failing to reach its potential. Globalization, weak demand, deleveraging and a shortage of workers with technical skills all contributed to the investment fall-out and subsequent investment gap. And as PPI has documented elsewhere, the sheer accumulation of regulations over time can discourage capital investment and innovation.[1]

The top five U.S. Investment Heroes of 2013 are AT&T, Verizon, Exxon-Mobil, Chevron, and Intel.

Within this gloomy picture, however, are some bright spots—companies that continue to place big bets on America's future, creating jobs and raising productivity in the process. Surprisingly, in a world of information overload, identifying these major contributors to the U.S. economy is not an easy task, since most companies do not break out their domestic capital spending. That's why we undertook our second annual report on "U.S. Investment Heroes," making a systematic analysis of publicly available information to rank nonfinancial companies by their capital spending in the U.S.

PPI's ranking of U.S. Investment Heroes for 2013 is once again led by AT&T, which invested almost $20 billion in the U.S. in 2012. The list then follows with Verizon, Exxon, Chevron, Intel and Walmart.[2] Together, we estimate these companies invested almost $75 billion in the U.S. in 2012, an astonishing total almost twice the GDP of Wyoming.[3] Over the last year, these companies have poured capital investment into the deployment of high-speed broadband, oil and natural gas production, and new corporate and retail facilities.

As a general principle such spending provides both direct and indirect benefits to Americans. For example, a variety of studies suggest that investment in fixed and mobile broadband creates jobs. In fact, PPI Chief Economic Strategist Michael Mandel estimates that since Apple introduced the iPhone in 2007, the economy has created over 750,000 jobs related to mobile apps.[4]

Indeed, telecommunications and cable companies are a major driver of U.S. investment today, sparking the rise of what we call "the data-driven economy." The digital transformation of the U.S. economy would not be possible if high-speed fixed and mobile broadband networks were not in place. That's why encouraging private investment in our nation's broadband infrastructure is rightly a major priority for the Obama administration.[5] Beyond that, robust private investment in smart devices, sensors, and "big data" analytics is sparking the emergence of the "Internet of Everything," which could boost productivity and job creation in 'physical' industries such as manufacturing and transportation.[6]

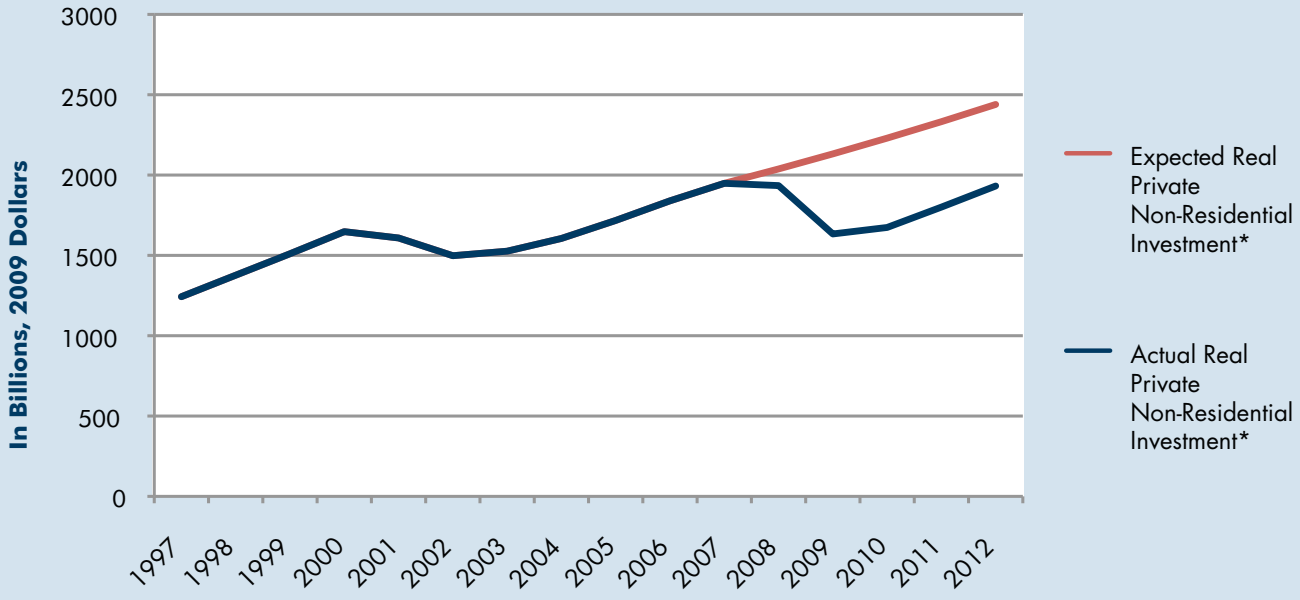
Our ranking of U.S. companies investing in America also shows the tremendous role energy—oil and natural gas production and power generation—has on U.S. economic growth. The shale oil and gas boom has turned old assumptions about energy scarcity on their head. It is lowering input costs for U.S. chemical companies and helping to revive U.S. manufacturing. It may also turn the United States into a major energy exporter, while creating jobs at home.

This report is the third in PPI's "Investment Heroes: Who's Betting on America's Future" research series. That so many companies are choosing to invest elsewhere—or not at all—makes it all the more important to recognize those that are placing their bets on America's future.

IMPORTANT NOTES ABOUT THE RANKING

As with last year's ranking,[7] in this paper we present two lists of "U.S. Investment Heroes": one that includes energy companies and one that does

FIGURE 1: THE U.S. PRIVATE FIXED INVESTMENT DROUGHT CONTINUES



**Assumes real investment grew over 2008-12 at average annual rate over 1997-07*
Source: BEA, PPI

not (our "Non-Energy U.S. Investment Heroes" ranking can be found at the end of this paper). We include a non-energy list to tell the story of what U.S. industries are investing in America outside of the sector that provides a necessary input to them all.

Most companies do not report their U.S. capital expenditures separately from their global (gross) capital expenditures. Therefore, we designed a novel methodology to calculate what share of their global capital expenditures were in the United States. This methodology incorporates certain assumptions, which we detail in the complete methodology found at the end of this paper, and incorporates publicly available annual reports and financial statements. In many cases, no other estimates of U.S. capital expenditures currently exist outside of our calculations.

Our U.S. Investment Heroes ranking for 2013 followed a similar methodology to last year. We started with the 2013 Fortune 150 list as our universe of companies. We removed all financial and insurance companies, since their reporting of capital expenditures is not consistent with our interpretation of plants, property, and equipment. We then estimated the amount of gross capital expenditures in the United States, and finally ranked the companies on our list in order of their total estimated U.S. capital expenditures. For these rankings, we used each company's most recent fiscal year statements. In most cases, the fiscal year is the calendar, in which case we used 2012. For a handful of companies, the fiscal year did not match up with the calendar year, but the most recent fiscal year statement did capture a large portion of calendar year 2012.[8]

We note that the companies in these rankings are all based in the United States. Non-U.S. based companies were not included in this list because of data comparability issues, but certainly there are non-U.S. companies that invest in America. In fact, our recently released report "Non-U.S. Investment Heroes: Foreign Companies Betting on America" highlights those foreign companies that are investing in America's plants, properties, and equipment.[9]

We would also like to offer several caveats associated with these rankings. First, some of the companies on our list have been criticized for a wide variety of issues, including broadband pricing, environmental impacts, privacy concerns, and low tax payments. Without minimizing these potential problems, we don't want to discount the positive impact these companies are having in terms of creating U.S. jobs and generating economic growth through their U.S. investments.

Second, a company's absence from the list does not mean they did not invest domestically in 2012. We cut the list at the top 25 companies for both our energy and non-energy rankings. Mainstay U.S. companies like UPS, Dow Chemical, and Google are investing domestically, just not as much as the other companies on the list.

Finally, we note that if our universe was expanded to include companies in the Fortune 200, additional energy and power companies would have made the list. For example, we estimate Apache invested $5.2 billion in 2012, while Southern Power invested $4.8 billion and PG&E invested $4.6 billion. We do not discount this investment, and certainly the investment in our nation's power infrastructure by these companies is essential. Rather, we decided to stay in the Fortune 150 to make our findings comparable with last year's results.

U.S. INVESTMENT HEROES

This year's ranking of "U.S. Investment Heroes" tells a clear story about which types of companies are investing in America's future. Our 2013 list is comprised significantly of three types of companies: cable and telecommunications, technology, and energy. In fact, companies in these three categories make up 18 out of the 25 on our list.

The top five U.S. Investment Heroes of 2013 are AT&T, Verizon, Exxon-Mobil, Chevron, and Intel. Together, these five companies invested over $66 billion in 2012 on U.S. plants, property, and equipment according to our estimates. The complete list of PPI's top 25 U.S. Investment Heroes for 2013 is below.

Telecom giants AT&T and Verizon again lead this year's ranking. Exponential growth in demand for mobile data, video streaming, and other high-speed broadband services makes investing in fixed and wireless broadband infrastructure essential.[10] Together, we estimate these two companies invested $34.5 billion in building out their high-speed national broadband networks in 2012.

Similarly, Sprint and CenturyLink also invested in the deployment of the latest generation high-speed broadband network. For example, Sprint spent much of its 2012 capital expenditures on the transition from the now legacy Nextel platform to its newer, high-speed Network Vision platform.

The demand for mobile internet connections is also being met in part by the cable companies on our list. In 2012, both Comcast and Time Warner Cable invested in a joint network of 150,000 "wi-fi hotspots" nationwide, as part of the CableWiFi Alliance.[11] These cable providers also spent much of their investment on updating equipment and expanding existing network capacity, according to their annual reports.

Building off the availability of high-speed internet connections, the technology companies on our list spent 2012 investing in the hardware and software that goes into smart devices. According to press reports, Intel announced it was expanding its D1X research facility in Hillsboro, Ore. by an additional 2.5 million square feet.[12] In

U.S. INVESTMENT HEROES: TOP 25 NONFINANCIAL COMPANIES BY ESTIMATED U.S. CAPITAL EXPENDITURE[1]

Rank	Company	Estimated 2012 US Capital Expenditure[2] (in $ mns)	Rank	Company	Estimated 2012 US Capital Expenditure[2] (in $ mns)
1	AT&T[3]	19,465	14	Union Pacific[3]	3,738
2	Verizon Communications[4]	15,000	15	General Motors	3,650
3	Exxon Mobil	12,157	16	Enterprise Products Partners[3]	3,622
4	Chevron	10,738	17	Time Warner Cable[3]	3,095
5	Intel	8,769	18	Microsoft	3,044
6	Walmart Stores	8,257	19	Amazon[6]	2,945
7	Occidental Petroleum	7,592	20	CenturyLink[3]	2,919
8	ConocoPhillips[5]	6,079	21	Ford Motor[7]	2,693
9	Exelon[3]	5,789	22	Walt Disney	2,671
10	Comcast[3]	5,714	23	FedEx	2,575
11	Duke Energy	5,407	24	Apple	2,553
12	Hess	4,740	25	Target	2,345
13	Sprint Nextel[3]	4,261	**Total**		**149,817**

Source: PPI estimates based on 2012 and 2013 company financial reports & filings. Totals do not include R&D, only capital expenditures in plants, property, and equipment.

1. Universe includes nonfinancial Fortune 150 companies from 2013
2. For all but six companies, fiscal year 2012 was calendar year 2012. For Walmart, Microsoft, Walt Disney, FedEx, Apple, and Target, we used the most recent fiscal year statement as of August 2013
3. Predominately U.S. Operations
4. Reduced total capital expenditures by the share of international employment, to adjust for global investment activities
5. May include a small amount of investment in Latin America
6. Includes Canadian investment, but our assessment finds this amount was minimal
7. Adjusted for net investment in operating leases by removing it from long-lived assets in proportion to the country share

2012, Microsoft expanded its U.S. retail presence with the launch of Microsoft Surface and Windows RT, and in July the company opened a new corporate office in Silicon Valley.[13] Apple also invested its U.S. capital expenditures in retail stores, new corporate facilities, and updates to its information systems hardware and software.

The eight energy companies on this year's list invested a combined $56 billion in 2012. The oil and natural gas companies in our ranking all invested in expanding their oil and gas exploration, production, and refining in 2012. For example, according to company reports, Occidental Petroleum's average U.S. operated-rig activity increased 25 percent in 2012 over 2011, from 51 rigs to 64 rigs in California and the Permian Basin in Texas. ConocoPhillips spent its estimated $6.1 billion U.S. investment in 2012 on oil and natural gas development in Texas, New Mexico, North

Dakota, Oklahoma, Montana, Colorado, Wyoming, Alaska, and the Gulf of Mexico. The power companies on our list, Exelon and Duke Energy, invested primarily in expanding their capacity to generate and distribute power.

Ford and General Motors, two major U.S. motor vehicle manufacturers, were also on last year's list. As was the case last year, annual reports show much of the capital expenditures from these companies were focused on their existing automobile and light truck product lines. Moreover, in addition to expanding its Texas production footprint, in September 2012 General Motors announced the creation of its first "IT Innovation Center" in Austin where it intends to hire up to 500 IT professionals to "drive breakthough ideas into GM vehicles."[14]

This year's list also includes several retailers, all of which have an expansive internet presence. Two retailers on the list, Walmart and Target, also have a major brick and mortar presence that is integrated with their online services. Walmart, sixth on our 2013 ranking, spent much of its $8.3 billion U.S. investment in building out new stores and remodels, information systems, and eCommerce capabilities.

Though most of the companies on this year's list were also U.S. Investment Heroes in 2012, there are several new additions to the list worth noting. Amazon, the giant Internet-based retailer, substantially increased its U.S. investment in 2012. According to company records, Amazon is significantly expanding its network of local "fulfillment" centers across the country, in addition to spending on software enhancements and website development. Moreover, in 2012 the company invested $1.4 billion to purchase three square blocks in Seattle, Wash. for its office headquarters.

Union Pacific, a railroad company, is also new to this year's list. The company, whose railroads cover 23 states in the Western U.S., invested $3.7 billion in updating 1,051 miles of railroad track infrastructure, adding 139 miles of new rail lines, and on new locomotives and freight cars.

POLICY IMPLICATIONS

Given the importance of investment as a path to sustainable growth, it is essential that our economic policies make domestic business investment a priority. Investment in the key sectors highlighted in this report—telecommunications and cable, technology, and energy—generates very positive spillover effects for the rest of the economy.

We can see the impact of the data-driven economy in our rankings with the rise of Amazon's investment over the last year. Amazon's rapid expansion—and the growth in all eCommerce[15]—would likely not be possible if it wasn't for the ongoing investment by telecommunications and cable providers in ever faster fixed and mobile broadband networks.

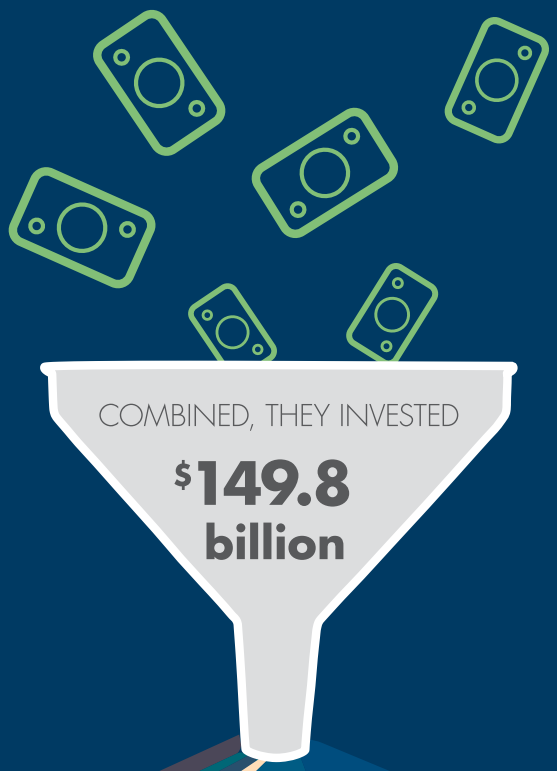
That means it is essential to have policies that facilitate continued investment in cable and telecommunications, technology, and energy, while simultaneously encouraging more investment from other sectors not heavily represented in our rankings.

> The eight energy companies on this year's list invested a combined $56 billion in 2012.

The last year has seen some progress to this end. The American Tax Payer Relief Act of 2012, passed in January 2013, allows for a 50 percent deduction in capital expenditure-related depreciation that was retroactive to January 2012. Several companies on our list highlighted this measure in their discussion of 2012 capital investments.

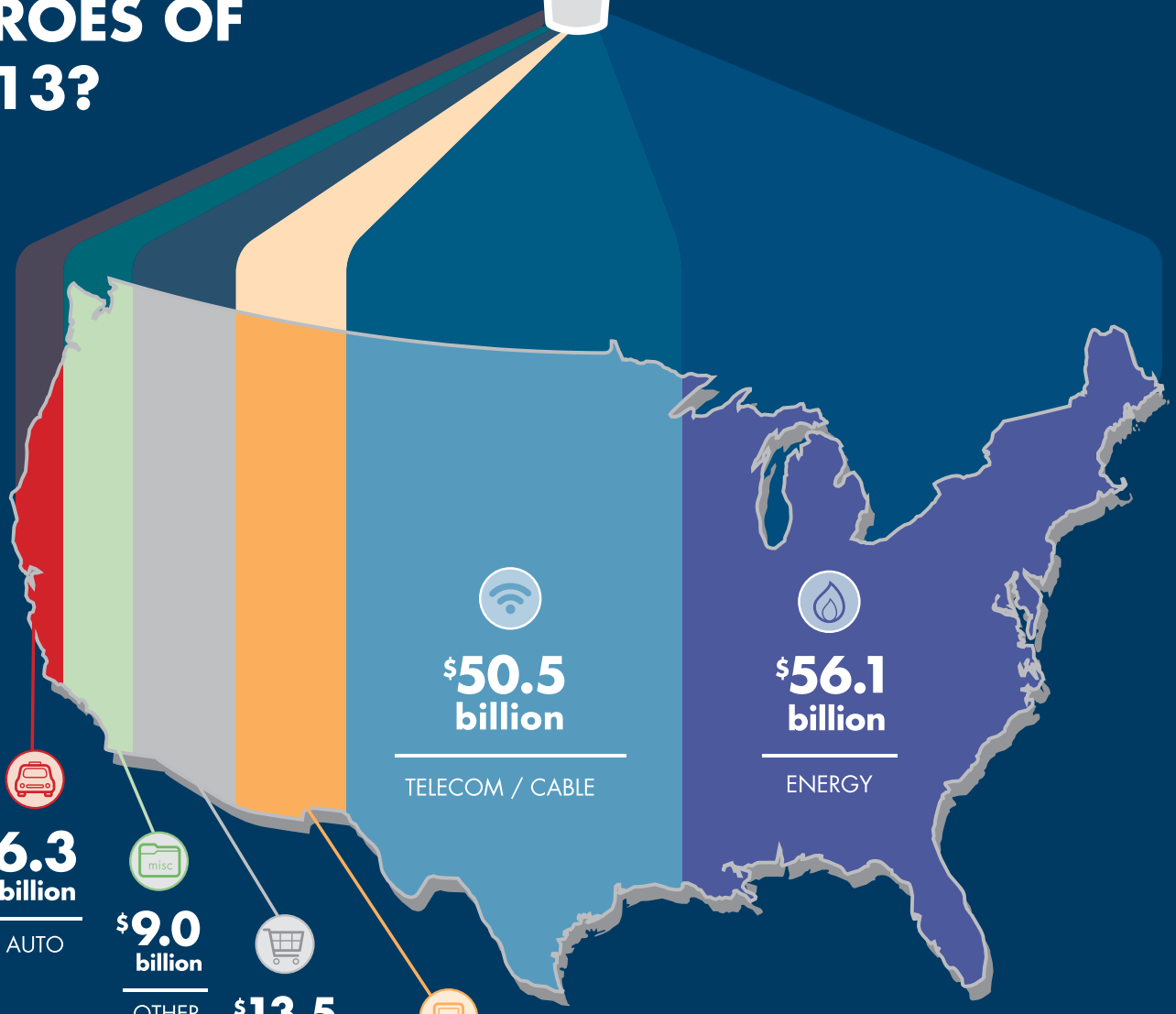
In June 2013, President Obama issued an Executive Order directing all federal agencies to review spectrum needs within 6 months.[16] The intention of this order is to reallocate or repurpose unused and unneeded spectrum held by the government to telecommunications companies that need more spectrum to meet growing consumer

WHO ARE THE U.S. INVESTMENT HEROES OF 2013?



COMBINED, THEY INVESTED

$149.8 billion



$50.5 billion

TELECOM / CABLE

$56.1 billion

ENERGY

$6.3 billion

AUTO

$9.0 billion

OTHER

$13.5 billion

RETAIL

$14.4 billion

TECHNOLOGY

PPI estimates based on 2012 and 2013 company financial reports & filings.

FOUR WAYS TO ENCOURAGE MORE INVESTMENT:

Simplify the
CORPORATE TAX SYSTEM

Invest in
WORKFORCE TRAINING

Don't over regulate
INNOVATIVE INDUSTRIES

Free up more
SPECTRUM

demand for wireless communication. A finite resource, current spectrum constraints threaten the mobile revolution from reaching its potential.

Also in 2013, the Obama administration announced a new "ConnectEd" initiative that will accelerate broadband access and technology adoption at schools,[17] and the government implemented FirstNet, the first nation-wide wireless emergency response network.[18] On the manufacturing front, a February 2013 evaluation of the Obama administration's grant-making program for "regional innovation clusters", designed to boost U.S. production, showed the initial funding is having a positive economic impact.[19]

But more needs to be done. We are still a long way from meeting the spectrum goals outlined in the 2010 Broadband Agenda.[20] And the effectiveness of upcoming voluntary spectrum auctions, remains uncertain, as many of the terms are still undecided. Recent PPI research on the auction concluded that picking and choosing which providers can participate may come at a social and economic cost.[21] That means it is essential to open these auctions to all companies that need spectrum, in order to effectively spur continued broadband investment.

> It is essential our economic policies make domestic business investment a priority.

In energy, the debate over natural gas fracking, along with territorial disputes over interstate and oil and natural gas pipelines, could eventually hinder investment if issues remain unresolved. It is important that U.S. energy policy embrace the potential of low-cost natural gas, while encouraging producers to adopt "best practice" drilling and production techniques that minimize health risks and environmental damage. Our research has shown both U.S. and non-U.S. energy companies are among the largest investors in America's plants, properties, and equipment.

Policy makers also can encourage more companies across all sectors to invest domestically. Through responsible regulatory reform, we can clear bureaucratic red tape by removing or improving the many outdated and duplicative regulations imposed on U.S. businesses at the federal, state, and local levels. PPI has proposed Congress authorize a Regulatory Improvement Commission (RIC) that would accomplish this task in a politically viable way.[22] Indeed legislation called for the establishment of a RIC was recently introduced in the Senate as the *Regulatory Improvement Act of 2013*.[23] Should such legislation move forward at the federal level, there is great potential for the RIC to be replicated by both state and local governments.

Simplifying the corporate tax system is another way to encourage businesses to invest in America. Our tax system should reward companies that produce domestically. And a simpler, streamlined tax code for small businesses could go a long way toward enabling entrepreneurs to grow their business for the first time. Moreover, U.S. businesses of all shapes and sizes are spending millions each year on patent litigation. Patent reform could free up funding for these companies to expand and innovate without having to worry about getting hit by frivolous lawsuits.

Encouraging private investment also means ensuring there is a qualified workforce whose skills meet employer needs. It is well-documented that for today's fast-growing data-driven jobs, there is a skill mismatch that is forcing too many Americans—especially young college graduates—into lower-paying jobs they are overqualified for.[24] The *Workforce Investment Act of 1998*, having just cleared the Senate HELP Committee for reauthorization,[25] could provide a powerful opportunity to bridge the skills gap by targeting recent college graduates that lack the skills they need to get a high-paying job.

Finally, to invest effectively in U.S. manufacturing, PPI proposes Congress fund a global "Competitiveness Audit."[26] The global Competitiveness Audit would tell us in which sectors the U.S. is at or near competitive in terms of pricing by comparing U.S. production costs to the cost of comparable goods imported from overseas. For example, we think the U.S. has a competitive edge in hi-tech manufacturing, such as 3-D printing, but we don't actually have any official statistics to tell us in which areas we are and are not internationally competitive. Having a formal measure of competitiveness could help target private investment funding more effectively.

CONCLUSION

U.S. economic policy is strongly biased toward stimulating consumption, not investment. This is wrongheaded, because investment in America's capacity to produce both tangible and intangible goods and services is the surest way to put our economy back on a high-growth trajectory. Such investment not only boosts output, but also creates the high-skill, high-wage jobs we need to lift the middle class and reverse today's troubling trend toward greater inequality.

> Telecom and cable, technology, and energy currently dominate the sectors betting on America's future.

Our analysis shows that private domestic investment continues to be well below where it could have been had it not fallen during the recession. Only now is real private non-residential fixed investment reaching its pre-crisis levels. And public investment, constrained by pressures to reduce the federal deficit, will not be able to counteract this missing private investment. In fact, real public investment has been falling, and is currently at 2002 levels, adjusted for inflation.

Our research suggests that while there are some policies in place to facilitate private U.S. investment, more can be done. This

year's rankings highlight the very important fact that telecom and cable, technology, and energy currently dominate the sectors betting on America's future. At the same time, our research indicates very few U.S. and foreign based manufacturers outside of motor vehicles are actively investing in America. This suggests policies that aimed at increasing investment in U.S. industrial capacity could have a sizable impact on creating new sources of sustainable economic growth.

NON-ENERGY U.S. INVESTMENT HEROES

As a complement to our complete U.S. Investment Heroes ranking, PPI also created a ranking of the top U.S. companies investing in the United States that are both non-financial and non-energy. Below is PPI's 2013 ranking of non-energy U.S. Investment Heroes according to our estimates. In addition to the non-energy U.S. companies contained in our initial ranking, this list of non-energy U.S. Investment Heroes includes two U.S.

TOP 25 NONFINANCIAL NON-ENERGY COMPANIES BY ESTIMATED U.S. CAPITAL EXPENDITURE[1]

Rank	Company	Estimated 2012 US Capital Expenditure[2] (in $ mns)	Rank	Company	Estimated 2012 US Capital Expenditure[2] (in $ mns)
1	AT&T[3]	19,465	14	Walt Disney	2,671
2	Verizon Communications4	15,000	15	FedEx	2,575
3	Intel	8,769	16	Apple	2,553
4	Walmart Stores	8,257	17	Target	2,345
5	Comcast[3]	5,714	18	IBM	2,146
6	Sprint Nextel[3]	4,261	19	Kroger[3]	2,062
7	Union Pacific[3]	3,738	20	United Airlines[3]	2,016
8	General Motors	3,650	21	CVS Caremark[3]	2,000
9	Time Warner Cable3	3,095	22	Delta Airlines[3]	1,968
10	Microsoft	3,044	23	HP	1,798
11	Amazon[5]	2,945	24	DirecTV	1,741
12	CenturyLink[3]	2,919	25	Boeing[3]	1,703
13	Ford Motor[6]	2,693	**Total**		**109,126**

Source: PPI estimates based on 2012 and 2013 company financial reports & filings. Totals do not include R&D, only capital expenditures in plants, property, and equipment.

1. Universe includes nonfinancial Fortune 150 companies from 2013
2. For all but eight companies, fiscal year 2012 was calendar year 2012. For Walmart, Microsoft, Walt Disney, FedEx, Apple, Target, Kroger, and HP we used the most recent fiscal year statement as of August 2013.
3. Predominately U.S. Operations
4. Reduced total capital expenditures by the share of international employment, to adjust for global investment activities
5. Includes Canadian investment, but our assessment finds this amount was minimal
6. Adjusted for net investment in operating leases by removing it from long-lived assets in proportion to the country share

airlines, United Continental and Delta, which both reported investing in a new fleet of Boeing airplanes in 2012 while refurbishing aircraft in thier existing fleets. Boeing, which also makes this ranking, spent most of its capital expenditures on the production of commercial airplanes, military aircraft, and network and space systems.

Other non-energy U.S. Investment Heroes include technology giants IBM and HP, which invested heavily in new software and systems technologies. DirecTV, a satellite communications and cable provider, spent $1.7 billion in 2012 on new at-home equipment and satellite upgrades in an effort to retain its customers.

Finally, major U.S. grocery chain Kroger, and pharmacy chain CVS, spent most of their 2012 investment on new stores and maintaining existing operations.

METHODOLOGY

To develop this year's list of "Investment Heroes," we started with the 2013 list of Fortune 150 companies, ranked by revenue.[27] We omitted financial companies, because their reporting of capital expenditures is not consistent with our definition of U.S. plants, property, and equipment. For each company, we then looked at their most recent publicly available financial data, including their 2012 annual 10-K filing with the SEC, and used this information to estimate their U.S. expenditures on additions to plants, property, and equipment (but not R&D) over the last fiscal year.

To rank the remaining Fortune 150 companies by U.S. capital spending, we estimated the appropriate share of gross capital expenditures to investment in the U.S. using several different procedures, as appropriate.

In some cases, including many of the energy companies on our list, the amount of U.S. investment was given explicitly in the filing. In those cases that estimate was used.

In other cases, the company did not break out non-U.S. operations separately, suggesting that they were relatively small (non-material). In those cases, we allocated all of the capital expenditures as U.S. expenditures, and indicated that on the table.

We paid special attention to AT&T and Verizon, the top two companies on our list. In its statement, AT&T reported its assets were "predominately in the United States." For Verizon, no international distribution of assets were reported, even though there are some international operations. We adjusted our estimate for their international operations using the share of international employees as a proxy. We would like to note that based on our analysis, both companies would retain their top spots under any reasonable set of assumptions.

For companies that did significant business internationally, we used the geographic distribution of long-lived assets—plant, property, and equipment—for their two most recent fiscal years. In all but six cases, or eight cases in the non-energy ranking, the fiscal year was the calendar year, so we used fiscal year 2011 and 2012 statements. For the remaining six companies, or eight on the non-energy list, we used the two most recent fiscal years available. Once we had the latest two years of data, we added back reported depreciation for the latest fiscal year to estimate domestic capital expenditures.

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NOTES

About the Progressive Policy Institute

The Progressive Policy Institute (PPI) is an independent research institution that seeks to define and promote a new progressive politics in the 21st century. Through research, policy analysis and dialogue, PPI challenges the status quo and advocates for radical policy solutions.

Progressive Policy Institute
1101 14th St. NW
Suite 1250
Washington, DC 20005

Tel 202.525.3926
Fax 202.525.3941
Email info@ppionline.org
www.progressivepolicy.org

REPORT

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U.S. Investment Heroes of 2014:

Investing at Home in a Connected World

BY DIANA CAREW AND DR. MICHAEL MANDEL

SEPTEMBER 2014

In this era of globalization, goods, services, money, people, and data all cross national borders with ease. Indeed, connectedness to the rest of the world is now essential for the data-driven economy we find ourselves in to thrive. It follows that our tax, trade, immigration, and regulatory policies must be oriented to encourage that connectedness.

But perhaps paradoxically, prospering in a connected world requires a dedication to investing at home. It is impossible to participate as a full partner in the global economy unless we are investing in digital communications networks, education, infrastructure, research, energy production, product development, content, and security domestically. Investment generates increased productivity, higher incomes, new jobs, and more opportunities for the economic mobility and growth that we all desire.

Such prosperity-enhancing investment comes in many flavors, both private and public. In this report, we focus on identifying the U.S.-based corporations with the highest levels of domestic capital expenditures, as defined by spending on plants, property, and equipment in the United States. Currently, accounting rules do not require companies to report their U.S. capital spending separately, although some do. We fill in this gap in available knowledge using a methodology outlined at the end of this paper, based on estimates derived from published data from nonfinancial Fortune 150 companies.[1]

To understand which companies are betting on America's future, we rank the top 25 companies by their estimated domestic investment. We believe this list can help inform good policy for encouraging continued and renewed investment domestically.

This year, as in the previous two years, the company at the top of our list is AT&T, which invested $20.9 billion in the United States in 2013. The next on the list is Verizon, with an estimated $15.4 billion in domestic capital spending, followed by Exxon Mobil, Chevron, and Walmart for the top five. Compared to last year's report, notable changes include the return

About the authors

Diana Carew is an economist and director of the Young American Prosperity Project at the Progressive Policy Institute. Dr. Michael Mandel is the chief economic strategist at the Progressive Policy Institute and a senior fellow at Wharton's Mack Institute for Innovation Management.

of Google and General Electric to the list, and Apple's jump from in its rank from 24th to 15th. Similar to last year, telecommunications, cable, Internet, technology, and energy companies reigned supreme. They comprised 19 out of the 25 companies on the list, and accounted for 83 percent of the total investment.

In addition, we present two new features in this report compared to last year. First, we offer up a summary table of the top ten companies with the highest levels of domestic capital spending over the past three years. The list highlights those companies that have sustained their investment in America over time. Topping our three-year investment heroes list is AT&T, which invested $60.5 billion in the United States from 2011 to 2013.

Second, we use government data to analyze changes in domestic capital spending by industry since the recession started in 2007. The data only goes through 2012, but is adjusted for inflation and covers all types of investment, including structures, equipment, and even intellectual property, such as R&D and content creation. We find this analysis corroborates the findings of our main list, showing that the mining sector and the information sector—including telecom, cable, and Internet companies—had the biggest gains in capital investment over this period.

We conclude our analysis with policy measures that could help boost corporate investment in the United States, as well as a supplementary list of the top 25 non-energy U.S. investment heroes. For example, the large and ongoing investment by telecommunications, cable, and technology companies means it is imperative legislators and policymakers strike the right balance on issues such as broadband regulation, the IP transition, government-owned broadband networks, and data privacy. The large presence of energy companies suggests the ongoing regulatory debate over natural gas exports could have a significant impact on future domestic investment.

U.S. INVESTMENT HEROES: THE LIST

As with previous years, the focus of our analysis is to identify those companies which pour the largest capital expenditures into the domestic economy. We again present two complete rankings of the top 25 U.S.-based companies investing in America: one that includes energy companies, and one that does not. (The non-energy list can be found later in this paper.)

The top Investment Heroes of 2014 look very similar to last year, although in a slightly different order. AT&T, with $20.9 billion in capital expenditures, once again tops the list, followed by Verizon, Exxon Mobil, and Chevron. Rounding out the top ten are Walmart, Intel, Comcast, ConocoPhillips, Occidental Petroleum, and Exelon (Figure 1). Together, our 25 Investment Heroes invested about $152 billion in the United States in 2013, with the top ten companies alone investing almost $100 billion of the total.

The continued strength of domestic investment by telecommunications and cable companies is apparent. For example, Comcast moved up from being in the 10th spot last year to ranking 7th this year, on the strength of its investment in its X1 cable platform equipment, wireless gateways, and network capacity. AT&T invested significantly in expanding its U-verse fiber optic network, and Verizon focused its investment on building out its 4G LTE wireless network.

One important pattern to point out on this year's list is the strong gains by several Internet 'edge' companies, or companies that provide Internet-based content and services. Google re-entered the list in 12th position, after just missing a spot in the top 25 last year. According to public filings, the company invested heavily in production equipment, data centers, and real estate purchases in order to "manage increases in Internet traffic, advertising transactions and new products and services." Apple significantly raised its domestic investment in 2013, jumping from 24th to 15th on the list, focusing on product tooling and manufacturing process equipment, retail stores, and corporate facilities. Amazon also maintained its strong investment from 2012 to 2013, investing in more fulfillment centers and technology infrastructure for its Internet-based services.

The emergence of high-speed broadband has also fueled the large investment by the technology companies on our list. For example, in 2013 Intel completed construction of a new large-scale wafer fabrication facility in Arizona, reserved for future computing processor technologies, and began building a development fabrication facility in Oregon. And according to its public filing, in 2013 Microsoft focused on its cloud and devices

FIGURE 1: U.S. INVESTMENT HEROES: TOP 25 NONFINANCIAL COMPANIES BY ESTIMATED U.S. CAPITAL EXPENDITURE[1] (IN $ MNS)

Rank	Company	Estimated 2013 U.S. Capital Expenditure[2] (in $ mns)	Rank	Company	Estimated 2013 U.S. Capital Expenditure[2] (in $ mns)
1	AT&T[3]	20,944.0	14	Hess Corporation	3,851.0
2	Verizon Communications[4]	15,443.5	15	Apple	3,807.1
3	Exxon Mobil	11,072.0	16	Energy Transfer Equity[3]	3,505.0
4	Chevron	10,562.0	17	Union Pacific[3]	3,496.0
5	Walmart	8,652.0	18	Enterprise Products Partners[3]	3,408.2
6	Intel	8,441.6	19	Ford Motor[5]	3,391.8
7	Comcast[3]	6,596.0	20	General Electric	3,266.2
8	ConocoPhillips	6,350.0	21	Time Warner Cable[3]	3,198.0
9	Occidental Petroleum	5,500.0	22	FedEx	3,167.1
10	Exelon[3]	5,395.0	23	Microsoft[6]	3,062.9
11	Duke Energy	4,762.7	24	FreeportMcMoRan[7]	2,666.0
12	Google	4,697.1	25	Amazon[7]	2,648.1
13	General Motors	4,591.4	**Total**		**152,474.8**

PPI estimates based on 2013 and 2014 company financial reports & filings. Totals include capital expenditures in plants, property, and equipment.

1. Universe includes nonfinancial Fortune 150 companies from 2014 .
2. For all but four companies, fiscal year 2013 was calendar year 2013. For Walmart, Apple, FedEx, and Microsoft, we used the most recent fiscal year statement as of August 2014.
3. Predominately U.S. operations.
4. Reduced total capital expenditures by the share of international employment, to adjust for global investment activities.
5. Adjusted for net investment in operating leases by removing it from long-lived assets in proportion to the country share.
6. Pro-rated assets by geographic location for the final two months of FY2014 to account for Microsoft's acquisition of Nokia, based in Finland, on April 25, 2014.
7. May include some Canadian investment, but our assessment finds this amount was minimal.

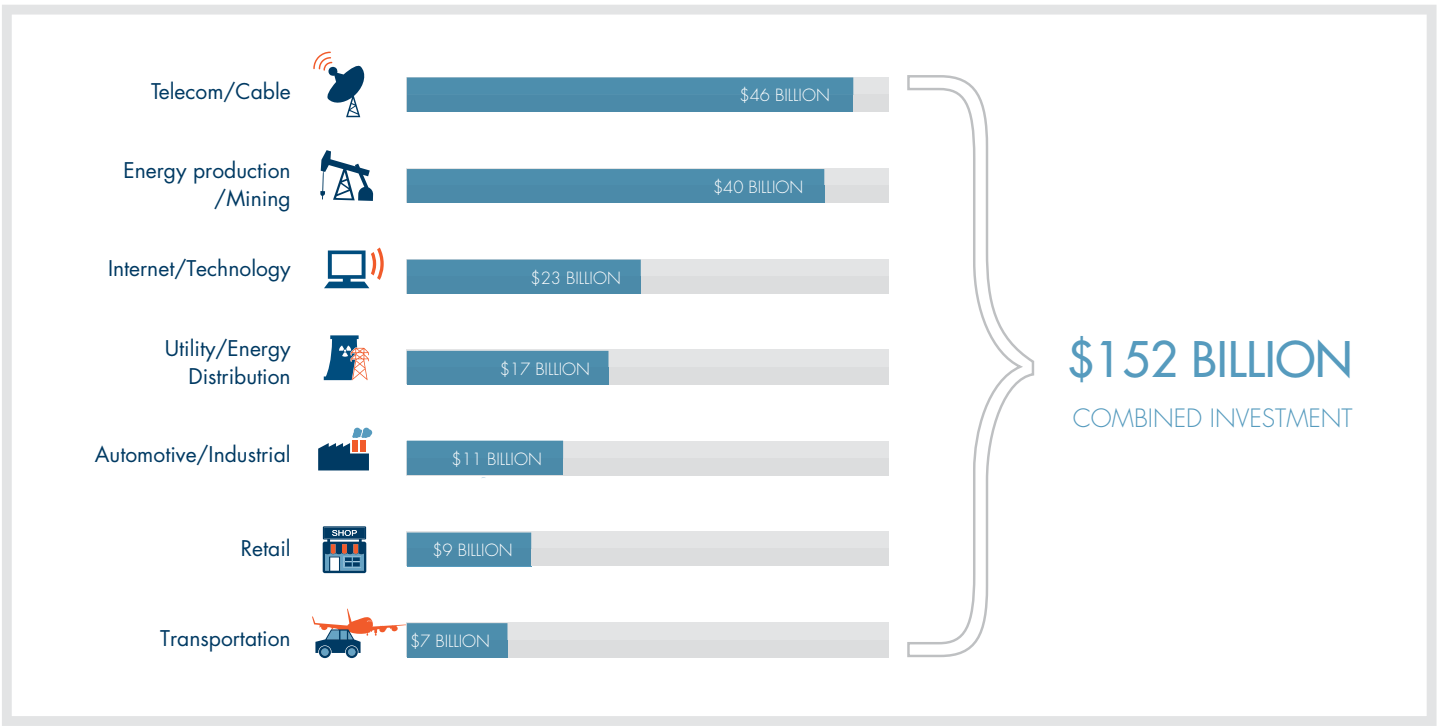
strategy, spending capital on data centers, facilities, and computer systems.

This year's list also included 10 energy companies, either involved in the exploration and production of oil and gas, or involved in energy distribution and power. All told, these ten companies invested a total of $57 billion in 2013, or 37 percent of the top 25 investment.

Much of the investment by the oil and gas companies on the list was concentrated on deepwater oil reserves off the Gulf of Mexico. In addition, these companies reported sizeable oil and gas exploration and production investment on reserves in Texas, Louisiana, Alaska, California, Wyoming, Ohio, and North Dakota.

Several other companies on the list made notable investments in 2013. Ford reported increasing production capacity in its U.S. plants by 200,000 units, in addition to significant U.S. hiring. Union Pacific invested heavily in its rail infrastructure, as well as line expansion, new freight cars, train control,

FIGURE 2: WHO ARE THE **U.S. INVESTMENT HEROES** OF 2014?



Data: PPI

and other technology. FedEx reported increased spending in both its Ground and Express facilities.

Overall, the top 25 list contains four telecom and cable companies, with a total of $46 billion in domestic capital spending (Figure 2). The next highest category in terms of investment is energy production and refining, with six companies accounting for a total of $40 billion in domestic capital spending. The third largest category is Internet and technology companies, containing five companies totaling $22.7 billion, led by Intel, Google, and Apple.

Finally, here we must note an important caveat. We acknowledge some of the companies on our list have been criticized for a variety of issues, including pricing, environmental impacts, privacy concerns, and low tax payments. Without minimizing these potential problems, we want to recognize the positive impact these companies are having in terms of creating U.S. jobs and generating economic growth through their U.S. investments.

THREE-YEAR HEROES

This is the third year that PPI has put together an Investment Heroes list, using essentially the same methodology. That allows us to assess investment patterns, to see which companies have sustained their high levels of domestic spending, making long-term bets on America.

In addition to our annual list, we put together a list of the top nonfinancial companies who are investing in the United States, based on cumulative capital expenditures from 2011 to 2013 as reported in our annual lists.[2] The results are shown in Figure 3.

What stands out is just how large the numbers are. The top company is AT&T, which by our estimates totaled $60.5 billion in capital expenditures from

2011 to 2013. Second was Verizon, with $46.6 billion in domestic capital spending. Together, these two telecom giants have spent roughly $107 billion on their domestic wireline and wireless networks from 2011 to 2013. By comparison, all government investment in airports, urban mass transit, and other non-highway transportation projects over the same period came to only $81 billion.[3]

Out of the top 10 Investment Hero companies for the three-year period, three are telecom and cable, and five are energy-related. Just two other companies, Walmart and Intel, made the list. Together, the top 10 companies invested $293 billion in the United States from 2011 to 2013.

RECESSION AND RECOVERY

So far we have concentrated on corporate data from financial reports for the past three years. Here we take a broader perspective. Looking at the latest aggregate GDP data from the Bureau of Economic Analysis, we notice good news and bad news.

The good news is that businesses and nonprofits are investing more in America. Adjusted for inflation, investment in structures, equipment, and intellectual property is up 4.7 percent from the second quarter of 2013 to the second quarter of 2014. That far exceeds the overall increase of 2.4 percent in gross domestic product over the same period.

The bad news is that the United States is still suffering from an investment drought. Almost seven years after the Great Recession started, overall nonresidential investment is only 4 percent above its pre-recession peak. By comparison, the recovery in personal consumption is twice as big, 8 percent, compared to its pre-recession peak in the fourth quarter of 2007. Adding to the imbalance, nonresidential investment growth slowed in 2013, to just 3 percent, compared to 7.2 percent and 7.7 percent in 2012 and 2011, respectively.

Still, some industries were able to power through the recession and significantly boosted their investment in the United States. To identify these "Investment Hero Industries," we looked at official government data on private sector investment in equipment, structures, and intellectual property by broad industry sector, adjusted for inflation. Using this data, Figure 4 shows the increase in investment from 2007, the peak year before the recession, to 2012, the last data available.

FIGURE 3: THREE YEAR TOTALS: WHICH COMPANIES ARE THE LEADERS?

		Total Estimated U.S. Capex 2011-2013 ($mns)
1	AT&T	60,509
2	Verizon Communications	46,643
3	Exxon Mobil	34,929
4	Chevron	31,377
5	Walmart	25,144
6	Intel	24,612
7	Occidental Petroleum	19,326
8	ConocoPhillips	18,052
9	Comcast	17,610
10	Exelon	15,226
	TOTAL	293,428

Data: PPI

We see that the top industry in terms of investment growth was mining, including oil and gas, which boosted investment by $31 billion (in 2012 dollars) between 2007 and 2012. That makes sense given the energy boom, particularly in natural gas, which has swept the country.

The second biggest contributor to investment growth was the information sector, which includes telecom, cable, and Internet 'edge' companies, as well as content producers such as publishers and movie makers. Investment in this sector rose by $21 billion (in 2012 dollars) between 2007 and 2012. Broadly speaking, the combination of telecom, tech, and content—which in another context PPI has called the tech/info sector—has been a potent force for growth.

FIGURE 4: WHICH INDUSTRIES ARE LEADING THE INVESTMENT RECOVERY: 2007-2012

Company	Increase in Investment, 2007-2012 (in 2012 $bns)
Mining (including oil and gas)	31.3
Information (including telecom, cable, and Internet companies)	21.1
Management of companies and enterprises	13.6
Agriculture, forestry, fishing, and hunting	10.1
Transportation and warehousing	7.5
Administrative and waste management services	5.4
Professional, scientific, and technical services	0.7
Health care and social assistance	-0.1
Educational services	-0.1
Utilities	-3.8
Manufacturing	-4.2
Arts, entertainment, and recreation	-10.0
Other services, except government	-10.7
Wholesale and retail trade	-11.2
Construction	-16.4
Accommodation and food services	-20.5
Finance and insurance	-43.3
Real estate and rental and leasing	-254.2

Data: BEA, PPI

At the other end of the spectrum, major sectors such as health care, education, manufacturing, accommodation and food services, and utilities contributed nothing to investment growth over this period.

HOW POLICY CAN BOOST INVESTMENT

This report identifies America's "Investment Heroes"—the corporations who are leaders in domestic capital spending. But what does that mean for legislators and regulators?

First, these companies should be commended for their willingness to invest in this country. More importantly, facilitating business investment needs to be high on the list of concerns for regulators—an explicit goal instead of a fortuitous outcome. Of course, regulation has a wide variety of important goals, including consumer protection, worker protection, and environmental protection. But the key lies in striking the right balance between providing consumer protections and enabling innovation and growth.

We believe a pro-investment agenda starts with a regulatory and tax policy environment that encourages more companies to be domestic investment heroes. Policies that provide a good macroeconomic environment for investment will pay off big in jobs, productivity, and wages.

That means policymakers must be aware that all regulations have impacts on business environment and investment appetite, whether directly or indirectly. Moreover, the unintentional accumulation of regulations over time can impede the flow of investment and innovation. That is why we proposed a Regulatory Improvement Commission (RIC), an independent body tasked by Congress to review existing regulations deemed duplicative or outdated.[4]

The large, robust investment by telecom and cable, and Internet and tech companies, suggests we are entering a period of unprecedented interconnectedness. Indeed, a recent PPI report on the so-called "Internet of Everything" (IoE)—the natural extension of Internet-type connectivity to physical objects—argues that we are only beginning to enter the next phase of smart design and delivery of everyday goods and services.[5] This reality makes it essential to have policies in place that encourage continued data-driven investment and growth.

Many of the policy decisions with the greatest impact for these companies are coming out of the Federal Communications Commission (FCC). Currently the FCC is reviewing several telecommunications, cable,

and Internet (broadband) issues that could have dramatic implications for the pace of future domestic investment.

First is the need to successfully execute the planned spectrum auction as scheduled for mid-2015.[6] All wireless broadband providers must have adequate access to spectrum as a way to encourage continued investment. Spectrum is necessary for wireless network expansion and to meet consumer demand for increased data flows, but it is a finite resource where many frequencies are tied up by the government or reserved for public use. As such, there are few opportunities for providers to obtain new spectrum. However, in May 2014, by recommendation of the Department of Justice, the FCC approved rules that would limit participation by large wireless carriers already holding low-frequency spectrum.[7] Such limitations could sacrifice continued investment in the high-bandwidth, national networks our data-driven economy relies on. Further, as highlighted in a previous PPI report, a compelling case has yet to be made that smaller wireless carriers would be impaired by larger providers fully participating in the auction.[8]

Second, the FCC must follow through on efforts by industry to transition to an all-IP world. The recent approval by the FCC of AT&T's petition to begin IP-transition trials in Florida and Alabama should be the first part of a gradual, complete transition.[9] Forcing companies to invest in outdated, underused technology will not spur the innovation and growth we need to fully participate in the globally-connected economy.

Third, the FCC is currently considering an order that could encourage more local governments to deploy their own broadband networks.[10] As recent PPI research shows, such investment could crowd-out private investment in broadband, which is quite strong and robust. Instead, in an era of constrained fiscal resources, public investments in transportation infrastructure may have a greater economic return.[11]

Fourth, the FCC must adopt an approach to the net neutrality debate that does not choke off investment. Currently, net neutrality advocates are pushing the FCC to regulate the Internet as a public utility,[12] which runs counter to the light-touch regulation that has enabled the data-driven economy to prosper. Instead, a new PPI report by Bob Litan and Hal Singer proposes that the FCC should pick the policy that maximizes total investment across the entire Internet ecosystem.[13] They suggest case-by-case adjudication of Internet anti-competitive discrimination is the best path forward for ensuring an open Internet.

Data privacy is another issue that could have a big effect on future investment. As the FCC, the Federal Trade Commission (FTC) and the National Telecommunications and Information Administration (NTIA) decide how to approach the balance between consumer protection and data-driven innovation in a connected world, we must be mindful not to impose rules that are impractical to implement, restrict cross-border data flows, or hinder free speech.[14] And in the wake of the Snowden revelations, government should be transparent about their own collection and use of data to assuage public concerns over privacy violations.

The need for patent reform, which recently failed in the U.S. Senate,[15] also continues to be important for many Internet and technology companies. Patent Assertion Entities (PAEs) that purchase patents with the only intention of suing any company infringing upon it are a threat to companies' willingness to invest. As a PPI report has previously noted, there must be balanced reform that curbs predatory litigation while protecting legitimate patent infringement claims.[16]

On the energy front, efficiency-enhancing advancements in drilling and extraction techniques have substantially changed the economics of natural gas and oil.[17] While regulators wrestle with important environmental considerations, they must also consider the potential for natural gas and oil production and exports to boost growth and job creation through investment.

Another way to encourage domestic investment is with good tax policy. Tax policy can encourage investment at home by enabling U.S.-based companies to be competitive abroad. As an upcoming PPI paper will show, many developed countries have moved toward a territorial taxation system, making U.S. corporate tax policy a relic of the past. In particular, the fundamental problems in the corporate tax system offer incentives for

corporate inversion, requiring comprehensive tax reform and lowering the corporate tax rate, instead of punitive fix-it measures from the Treasury Department.[18]

Finally, access to qualified workers factors into corporate investment decisions. That means we must have policies that invest in a prepared workforce, by encouraging more STEM education to train workers for a connected future. In July 2014, the White House released a report on "Job-Driven Training and American Opportunity," where several initiatives focused on equipping more Americans with tech skills.[19] And President Obama's ConnectEd Initiative, a five-year plan to get high-speed broadband in the classroom,[20] along with July 2014 reforms to the government "e-rate" school broadband funding program,[21] will certainly boost the ability for students to get connected. But these efforts must only be the beginning, and they must be in partnership with the private sector.

Ensuring a globally-competitive workforce also requires policies that facilitate more viable alternative pathways into the workforce after high school. This includes reforms to the Higher Education Act (HEA) to expand more rigorous alternatives to the four-year college degree such as competency-based education. It also includes reauthorizing the Career and Technical Training Act (CTE) already supported by over 200 companies, many of which are telecommunications and tech companies.[22] Some companies are even working to create their own workforce pathways outside of traditional postsecondary education. For example, new "nanodegrees," through online educator Udacity, are being sponsored by AT&T.[23]

CONCLUSION

In order to truly achieve a pro-growth, pro-innovation agenda, we must emphasize economic growth based on production and investment over debt-driven consumption. In crafting regulatory policy, that means making investment a bigger priority and embracing a globally connected, data-driven future.[24]

We hope legislators and regulators can use the lists presented in this report to assist in thinking about how to encourage innovation-creating investment: why some companies are not investing, and why some on the list are not investing even more. Only when we have policies that make companies want to bet on America's future can we succeed in a connected world.

NON-ENERGY U.S. INVESTMENT HEROES

Here we present our list of the top 25 U.S.-based non-energy Investment Heroes (figure 5). Similar to the main list, no financial companies were included. We present this list to give an indication of which U.S. companies are investing in America outside of the sector that powers them.

Similar to the main list, the non-energy Investment Heroes of 2014 are remarkably similar to last year's list, also with slightly different rankings. Delta and United Continental continued to spend on new aircraft and existing aircraft modifications. Kroger, CVS, and Target invested significantly in new stores, store remodels, and information technology. Boeing invested in its manufacture of commercial and defense aircraft. Finally, Walt Disney continued its domestic theme park investment in 2013, but at a decreased level, just making it onto the list at number 25.

METHODOLOGY

Our U.S. Investment Heroes ranking for 2014 also follows a similar methodology to last year. We started with the 2014 Fortune 150 list as our universe of companies. We removed all financial and insurance companies, since their reporting of capital expenditures is not consistent with our interpretation of plants, property, and equipment. We then estimated the amount of gross capital expenditures in the United States for 2013, and ranked the companies in order of their total estimated U.S. capital expenditures.

For these rankings, we used each company's most recent fiscal year statements. In most cases, the fiscal year is the calendar, but for a handful of companies, we used the most recent fiscal year statement which captures a large portion of calendar year 2013.

The companies in these rankings are all based in the United States. Non-U.S. based companies were not included in this list, because of data comparability issues, although there are non-U.S. companies that invest in America. Moreover, a company's absence

FIGURE 5: NON-ENERGY U.S. INVESTMENT HEROES: TOP 25 NONFINANCIAL COMPANIES BY ESTIMATED U.S. CAPITAL EXPENDITURE[1]

Rank	Company	Estimated 2013 U.S. Capital Expenditure[2] (in $ mns)	Rank	Company	Estimated 2013 U.S. Capital Expenditure[2] (in $ mns)
1	AT&T[3]	20,944.0	14	Microsoft[6]	3,062.9
2	Verizon Communications[4]	15,443.5	15	Amazon[7]	2,648.1
3	Walmart	8,652.0	16	Delta Air Lines[3]	2,568.0
4	Intel	8,441.6	17	Kroger[3]	2,330.0
5	Comcast[3]	6,596.0	18	United Continental[3]	2,164.0
6	Google	4,697.1	19	Boeing[3]	2,098.0
7	General Motors	4,591.4	20	DIRECTV	2,050.0
8	Apple	3,807.1	21	CVS Caremark[3]	1,984.0
9	Union Pacific[3]	3,496.0	22	IBM	1,957.0
10	Ford Motor[5]	3,391.8	23	Target	1,886.0
11	General Electric	3,266.2	24	Johnson & Johnson	1,868.9
12	Time Warner Cable[3]	3,198.0	25	The Walt Disney Company	1,826.0
13	FedEx	3,167.1	**Total**		**116,134.7**

PPI estimates based on 2013 and 2014 company financial reports & filings. Totals include capital expenditures in plants, property, and equipment.

1. Universe includes nonfinancial Fortune 150 companies from 2014 .
2. For all but seven companies, fiscal year 2013 was calendar year 2013. For Walmart, Apple, FedEx, Microsoft, Kroger, Target, and Walt Disney, we used the most recent fiscal year statement as of August 2014.
3. Predominately U.S. operations.
4. Reduced total capital expenditures by the share of international employment, to adjust for global investment activities.
5. Adjusted for net investment in operating leases by removing it from long-lived assets in proportion to the country share.
6. Pro-rated assets by geographic location for the final two months of FY2014 to account for Microsoft's acquisition of Nokia, based in Finland, on April 25, 2014.
7. May include some Canadian investment, but our assessment finds this amount was minimal. Excludes capital leases.

from the list does not mean they did not invest domestically in 2013. We cut the list at the top 25 companies for both our energy and non-energy rankings. Large U.S. companies not on the list may be investing in America, just not as much as the other companies on the list. Finally, we note that if our universe was expanded to include companies in the top Fortune 200, additional energy and power companies would have made the list.

Most multinational companies do not provide a breakdown of capital expenditures by country in their financial reports. However, PPI has developed a methodology for estimating U.S. capital expenditures based on the information provided in the annual 10-K statement. This methodology should in most cases provide a reasonable approximation to actual spending.

We start with the 2014 list of Fortune 150 companies, ranked by revenue. We omitted financial companies, which use a different accounting standard for the reporting of capital spending. For each company, we then looked at their most recent publicly available financial data, including annual 10-K filings with the SEC.

1. If a company has small or no foreign operations, we allocated all capital spending to the United States.

2. If a company reported U.S. capital spending separately, we used that figure.

3. If a company did not report U.S. capital spending separately, but did report changes in U.S. long-lived assets or plant and equipment, we were able to use that information plus depreciation rates to estimate capital spending.

In a small number of cases, including major acquisitions, we look for proxies that enable us to allocate capital spending.

We paid special attention to AT&T and Verizon, the top two companies on our list. In its statement, AT&T reported its assets were "predominately in the United States." For Verizon, no international distribution of assets were reported, even though there are some international operations. We adjusted our estimate for their international operations using the share of international employees as a proxy. Based on our analysis, both companies would retain their top spots under any reasonable set of assumptions.

Acknowledgement

The authors would like to thank Brad Janicki for his valuable research assistance.

ENDNOTES

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Progressive Policy Institute
1101 14th St. NW
Suite 1250
Washington, DC 20005

Tel 202.525.3926
Fax 202.525.3941
Email info@ppionline.org
www.progressivepolicy.org

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Infrastructure Investment and Economic Growth: Surveying New Post-Crisis Evidence

BY DIANA G. CAREW AND DR. MICHAEL MANDEL

MARCH 2014

Does an increase in government spending create or destroy private sector jobs? Or more particularly, does additional spending on infrastructure—fixing existing roads and bridges, or building new ones—generate positive spillover effects for the rest of the economy?

This question featured prominently in the 2009 debate over the size of the fiscal stimulus package. The Obama Administration, led by Christina Romer of the Council of Economic Advisors, wrote in January 2009, "we expect the proposed recovery plan to have significant effects on the aggregate number of jobs created, relative to the no-stimulus baseline."[1]

In response, conservative economists and politicians argued that rather than creating new jobs, government spending on infrastructure would crowd out private sector hiring. Over 200 conservative economists expressed stimulus skepticism, with a Cato Institute statement proclaiming "we the undersigned do not believe that more government spending is a way to improve economic performance."[2] The net result: The Obama administration ended up getting less to spend on infrastructure than it would have and should have.

What's more, the debate over the size of the spillover effect—also known as "multipliers"—left lasting scars and hardened battle lines. Since then, proponents of higher infrastructure spending, including business stalwarts such as the U.S. Chamber of Commerce, have faced intense skepticism about the economic benefits of improving our transportation infrastructure. For example, the Department of Transportation funding programs were reauthorized in 2012 only after three years of temporary stop-gap extensions, with funding levels essentially unchanged from the previous authorization in 2005.[3]

About the authors

Diana G. Carew is an economist at the Progressive Policy Institute. Michael Mandel is the chief economic strategist at the Progressive Policy Institute and a senior fellow at Wharton's Mack Institute for Innovation Management.

In this paper, we try to go beyond the sterile back and forth to uncover the real story about the economic spillovers from infrastructure spending. In particular, we look at a series of new studies that have been done since the 2009 policy arguments, using a wide variety of data sources and analytical techniques.

New empirical research conclusively supports the view that hiring for government supported infrastructure projects creates a significant number of private sector jobs in the rest of the economy. Further, these studies provide fresh evidence that spending on infrastructure has a large, positive multiplier effect on the economy. In fact, our analysis shows an emerging consensus that for every $1 spent on transportation infrastructure, the increase in economic growth is between $1.5 and $2.

The case for increasing investment in transportation infrastructure—roads, bridges, and public transit systems—is clear. However, such public investment requires both the availability of financing and the will to spend it. Typically, a substantial portion of state and local infrastructure spending is financed by federal funds. At the same time, a substantial portion of local infrastructure spending is financed by state funds, depending on the state.

> Tackling the large deficit in transportation infrastructure investment will require increased financial commitments from all levels of government.

Taking all of the sources of funding together, real public investment in transportation infrastructure by state and local governments has fallen by about 20 percent since 2005. At the same time, while public investment was falling, real private investment in communications equipment, a measure of broadband infrastructure, increased by almost 50 percent. This is astonishing considering the severity of the 2007-2008 economic crisis.

This striking divergence between public investment in transportation infrastructure and private investment in communications shows how unbalanced this recovery has been. While the communications boom is driving U.S. growth and job creation, other sectors of the economy lag behind.

Repairing and upgrading our nation's transportation infrastructure is critical to supporting U.S. international trade, regional commerce, and local access to essential services. The contrast between the private sector's massive investment in high speed broadband and the public's meager investment in transportation infrastructure should be a wake-up call to U.S. policymakers.

Of course, the decline in public investment, particularly at the state and local level, reflects the steep drop-off in revenues during the recession. Many state and local governments continue to face tight budgets, and unlike Washington, they can't borrow readily to maintain and improve their infrastructure. Federal funding on public goods, meanwhile, has not been enough to fill the gap.

In this paper, we argue that the government is in the best position to fund transportation infrastructure projects, given the inherently public nature of roads, bridges, and public transit. Moreover, if the government chooses to invest in a market that already has private competition, it risks crowding out or displacing potential private investment. For these reasons, we believe federal, state, and local governments should make investing more in infrastructure a higher priority.

Finally, this paper argues that tackling the large deficit in transportation infrastructure investment will require increased financial commitments from all levels of government. Given low interest rates, it makes economic sense for the federal government to borrow to fund investments that

will generate new jobs and growth. Relying more on public-private partnerships also will allow government to leverage more private spending on public goods.

REPLENISHING AMERICA'S TRANSPORTATION CAPITAL

Building and maintaining our nation's transportation infrastructure—roads, bridges, water and public transit systems—is a vital part of a new, high-growth strategy for America. Transportation infrastructure is a critical foundation for sustainable economic growth, attracting business investment, facilitating basic trade and commerce, and allowing for the transport of goods locally, nationally, and worldwide. The United States cannot rebuild its prosperity and global competitiveness on a foundation of aging and inadequate transportation infrastructure.

Moreover, the condition of state and local transportation infrastructure can be a key determinant of that region's relative competitiveness. Businesses make location decisions based on access to quality roads and bridges to facilitate trade and transport. Urban companies rely on decent roads and public transit to bring workers in from the suburbs and exurbs. At the household level, the condition of public infrastructure determines the desirability of an area as a place to live—for example, convenient and low-cost access to schools, hospitals, electricity, and clean water.

Thanks to decades of deferred maintenance, however, much of our nation's infrastructure is in poor or failing condition. In its "2013 Report Card for America's Infrastructure," the American Society of Civil Engineers (ASCE) graded our nation's roads, aviation, and transit systems at a "D", ports at a "C", and bridges at a "C+".[4] Further, the ASCE argues the failing state of our nation's infrastructure will come at great economic cost if the current lack of investment continues. In 2013, the ASCE estimated there will be a cumulative funding shortfall in building and maintaining surface transportation and airports of almost $900 billion by 2020.[5] The majority of this gap is in surface transportation, which ASCE estimates will have a funding shortfall of $846 billion during this time period.

> Building and maintaining our nation's transportation infrastructure is a vital part of a new, high-growth strategy for America.

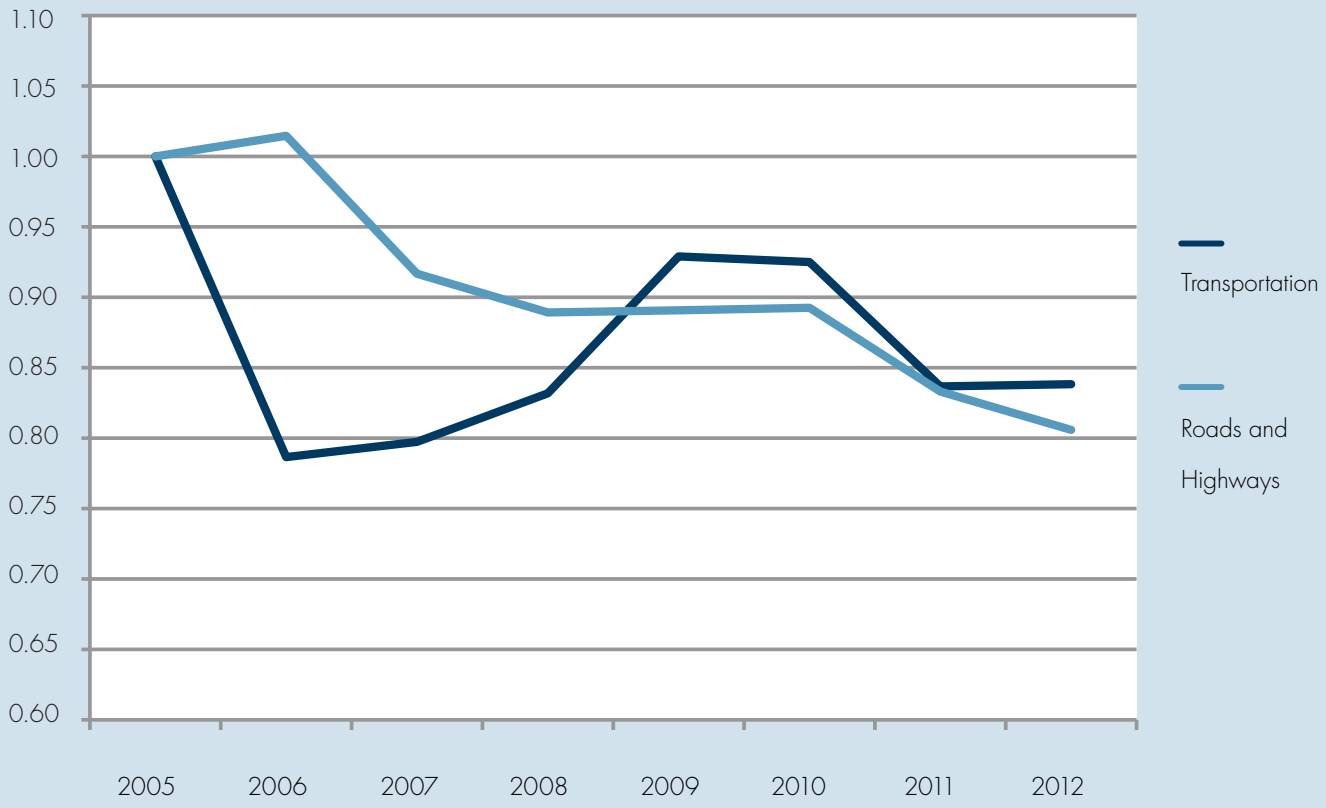
The deficit in America's transportation infrastructure comes at great potential cost to society. According to a 2012 study by Texas A&M Transportation Institute, sitting in traffic jams cost the United States $121.8 billion in 2011, or about $818 per commuter annually.[6] As the condition of our roads, highways, and public transit systems continues to deteriorate, the rising cost could have a significant impact on the millions of American commuters across the country. Worse, more delays, coupled with rising public transit prices to cover funding gaps, could disproportionately affect the low-income and inner city populations relying most on fast and affordable public transit to get to work.

FALLING STATE AND LOCAL GOVERNMENT INVESTMENT IN TRANSPORTATION INFRASTRUCTURE

In a few states, notably Texas and Maine, voters have approved measures to finance water and transportation projects.[7] Overall, however, state and local investment in transportation infrastructure is historically low, reflecting a combination of tight budgets and constrained funding from higher levels of government.

Since 2005, state and local government spending on roads and highways, and transportation systems has fallen almost 20 percent, in real terms. As demonstrated in the chart below, real investment in roads and highways has seen the steepest drop, falling precipitously since 2005. Both categories,

FIGURE 1: WRONG DIRECTION: STATE AND LOCAL GOVERNMENT REAL FIXED INVESTMENT IN PHYSICAL INFRASTRUCTURE (2005=1)



Source: BEA, PPI

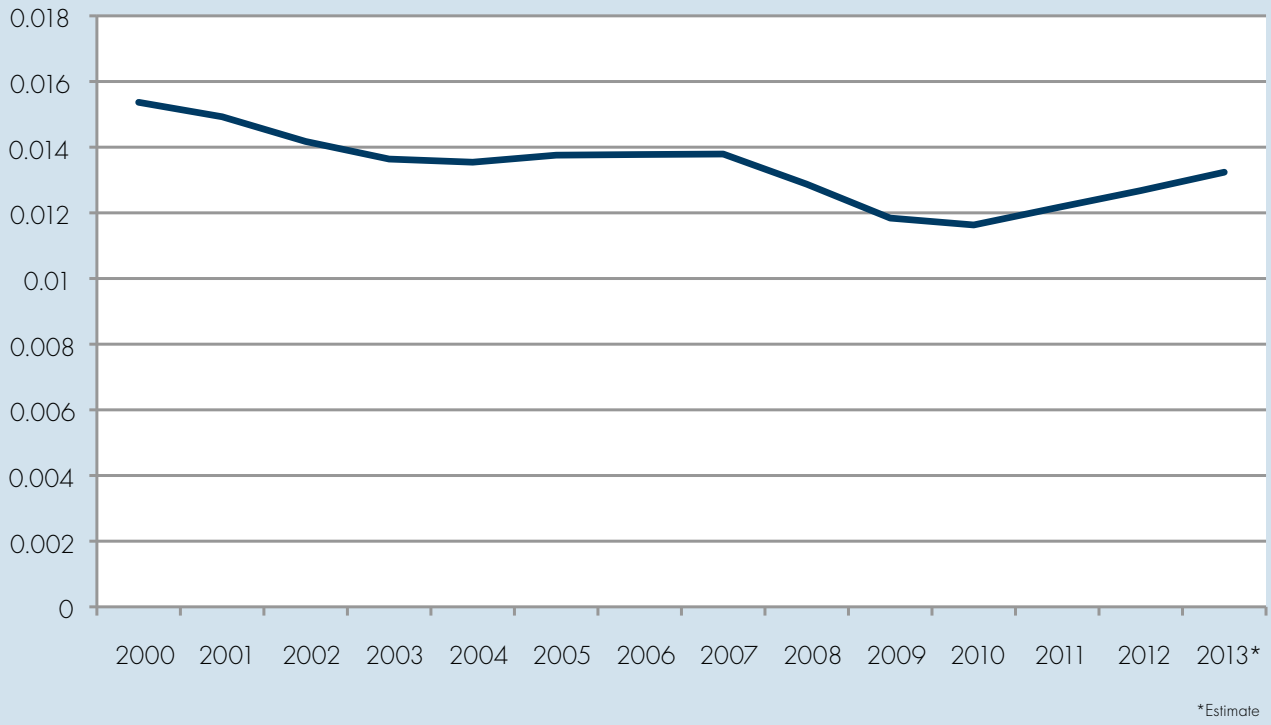
however, experienced declines in real investment, and all with a noticeable drop occurring post-recession.

The American Recovery and Reinvestment Act (ARRA)—the 2009 stimulus package—for a while offset the decline in state and local spending on transportation infrastructure. In 2009, Washington poured almost $50 billion into transportation infrastructure projects, including $26 billion for roads, highways, and bridges, and another $18 billion in high-speed rail and other public transportation projects.[8] The winding down of increased ARRA funding beginning in 2011 appears to have accelerated the fall in road and highway spending while bringing transportation spending back to its pre-recession state, in real terms.

Federal funding to state and local governments for transportation infrastructure has not increased since the ARRA stimulus ended. A 2011 CBO report comparing federal funding to state and local governments shows that transportation funding remains relatively low, even with the increase during the recession.[9]

The share of federal spending that goes to state and local governments for transportation projects also has been falling. As the chart below shows, the federal share slowly fell in the decade leading up to the recession, adjusted for inflation. It

FIGURE 2: HIGH PRIORITY? FEDERAL TRANSPORTATION GRANTS TO STATE AND LOCAL GOVERNMENTS AS A SHARE OF TOTAL FEDERAL SPENDING, IN 2009$



Source: OMB, BEA, PPI

plunged during the recession, and remains below already declining pre-crisis levels.

Uncertainty about what, if anything, Washington lawmakers plan to do about the nation's long-term debt problem makes it difficult for state and local governments to plan new transportation infrastructure projects. Typically, given the nature of transportation infrastructure, such projects are long-term and require a steady upfront financing stream. A lack of sustained federal funding could adversely affect how much funding states are willing to allocate to transportation, or delay certain transportation projects, especially for larger projects that could rely in part on federal aid.

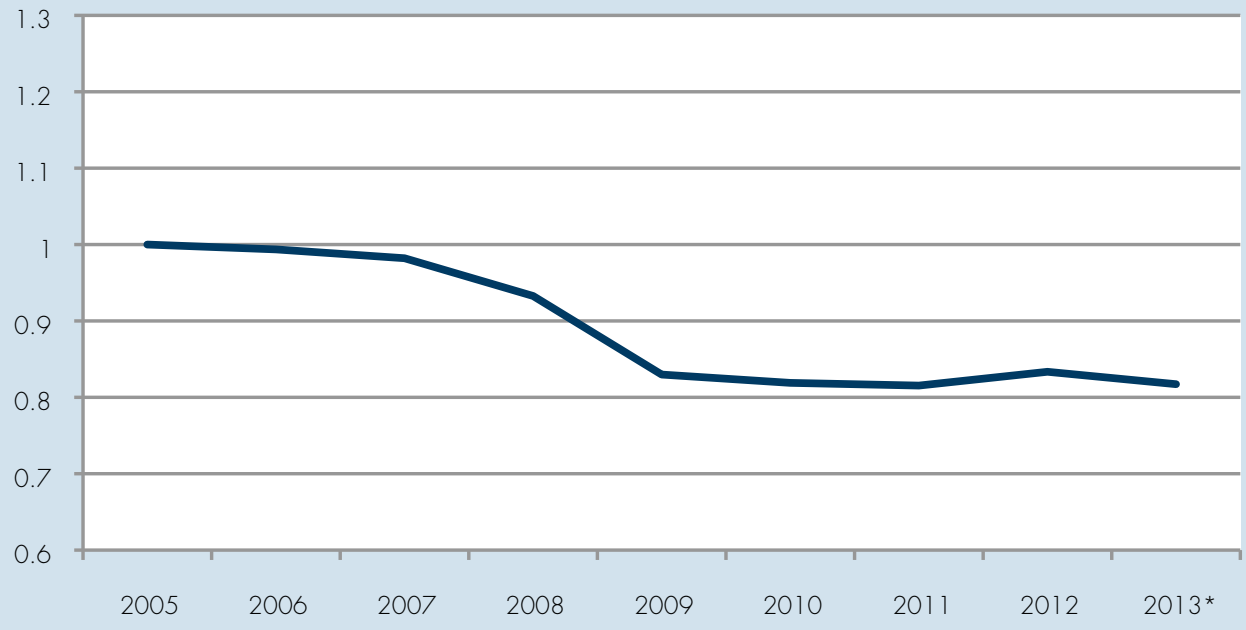
Most state and local spending on transportation infrastructure is on roads and highways. In 2012, roads and highways accounted for almost 80 percent of spending across the two categories, with public transit spending at about 20 percent. This makes the steep and consistent decline in road and highway investment particularly worrisome when considering ASCE's estimated funding shortfall for surface transportation.

Not surprisingly, as state and local government spending on roads and highways declined, so did employment in the highway, street, and bridge construction industry. Figure 3 shows employment in this industry fell by 20 percent since 2005.

TRANSPORTATION INFRASTRUCTURE BRINGS LARGE ECONOMIC BENEFITS

The potential boost to economic growth from investment in transportation infrastructure projects—a new bridge or general maintenance, for example—is both direct and indirect. The

FIGURE 3: NON-RECOVERY: HIGHWAY, STREET, AND BRIDGE CONSTRUCTION EMPLOYMENT (2005=1)



Source: BLS, PPI

direct economic impact goes to those involved in the transportation infrastructure project. This includes both the workers immediately involved in the construction, and the jobs required to support those workers, such as architects, engineers, and on-site food and sanitation providers.

The indirect economic impact is the local, regional, and even national economic boost that results from the construction of the new bridge or the road maintenance. Part of this spillover is the so-called "multiplier effect"—where the wages and salaries earned by those working on the bridge are spent on goods and services, which in turn generates additional spending by the providers of those goods and services, and so on.

Another indirect economic impact is enhancing state or regional competitiveness. For example, a new bridge may attract new businesses to an area because it provides faster access for commercial routes. The transportation time saved by the new bridge may also provide productivity gains for those who would have been driving for longer otherwise. Maintaining existing transport routes can also help businesses remain competitive.

The magnitude of the indirect economic spillover from investing in transportation infrastructure projects has traditionally been a subject of debate, especially surrounding the ARRA stimulus package.[10] Some studies have shown the spillover effect of infrastructure spending to be large. On the other hand, some empirical work could not conclude whether the indirect benefit justified the initial investment. During the 2009 stimulus debate, these studies were used as a political shield by both Democrats and Republicans to argue one side over another.

However, the new body of post-crisis empirical research indicates that the indirect spillover

benefits could be quite significant. For example, in a 2013 analysis on how to promote economic growth, the McKinsey Global Institute calls transportation infrastructure investment a potential "game changer" for the U.S. economy.[11] Their analysis found that spending an additional $150-$180 billion on transportation infrastructure annually through 2020 could result in a concurrent boost to the economy in the range of $270-$320 billion. That is, by increasing the amount spent on transportation infrastructure annually by just one percent of GDP, they estimate a boost to the economy of 1.8 times that amount.

A 2013 Congressional Budget Office (CBO) report found that federal transfer payments to state and local governments for infrastructure provide high returns to economic growth, second only to direct purchases of goods and services by the federal government.[12] CBO estimated the fiscal multiplier from public spending on infrastructure could be as high as 2.2—that is, for every $1 spent on transportation infrastructure, it would generate $2.2 dollars in economic output.

> A new body of post-crisis empirical research indicates that the indirect spillover benefits could be quite significant.

A 2011 study by Dartmouth College researchers James Freyer and Bruce Sacerdote took a novel approach by examining monthly employment data by state and county to assess the connection between spending for specific projects and any resulting gains to employment. The authors concluded that stimulus spending on transportation infrastructure during the Great Recession was "highly expansionary" at the state and local level, and that "estimates excluding education spending suggest fiscal policy multipliers of about 2.0 with per job cost of under $100,000."[13]

Yet another estimate of fiscal multipliers by Moody's in 2011 found a boost to the economy of $1.44 for every $1 invested in transportation infrastructure.[14] Assessing a range of fiscal policy responses to jumpstart the recovery, Moody's estimated spending on transportation infrastructure to be at the higher end of their range.

Finally, Sylvain Leduc and Daniel Wilson at the San Francisco Fed published a study that found the multiplier from public infrastructure investment to be roughly two.[15] Looking at federal highway grants, as apportioned to states, the authors found that additional highway spending results in both a short-term direct impact and a long-term indirect boost to the economy, particularly in truck transportation and retail. Moreover, the authors found evidence that the additional highway spending authorized from the American Recovery and Reinvestment Act (ARRA) had a significantly larger effect on economic growth than pre-recession estimates would have suggested.

The relatively large economic spillover from investing in transportation infrastructure in today's economy may also be explained in part by the drought in state and local spending. Increased spending on highways, streets, and bridges could have a larger direct impact on employment now than before the fall. At today's relatively depressed emloyment level, it may be more likely additional construction crews would need to be hired for new projects.

ENCOURAGING PRIVATE INVESTMENT IN TRANSPORTATION INFRASTRUCTURE

Although the potential economic benefits of investing in transportation infrastructure are great, it is an area of little private sector investment. In fact, this was a key factor behind President Obama's recent push to encourage private funding for transportation infrastructure.[16]

The government finances most transportation infrastructure projects. According to a 2013 Urban Land Institute report, state and local governments fund three-quarters of all transportation

infrastructure projects, with the federal government making up most of the difference.[17] The upfront fixed costs of transportation infrastructure projects are too large, with too little direct benefit, to make a compelling business case for single companies, organizations, or individuals to make the investment. In other words, transportation infrastructure is a classic public good in that everyone with access to the bridge, road, airport, etc. will benefit.

> Transportation infrastructure is an area of little private sector investment.

Nonetheless, there are several ways the public sector can encourage more private capital in funding transportation infrastructure. One way is through expanded use of public-private partnerships (PPP). These partnerships bring in private equity from mutual funds or other investments—as opposed to corporate investment—to provide the upfront financing for an infrastructure project. In turn, the state or local government responsible for the project signs over future cash flows associated with the project, for example, toll revenues, as a way of providing a return to the investors.

PPPs have already been successfully implemented for several projects, and seem to be gaining traction.[18] For example, the modernization of the I-495 Express Lanes in Virginia was the result of a PPP.[19] However, there are also inherent upfront risks and uncertainties associated with transportation infrastructure projects that could affect the ability to use PPPs more widely.

Yet another approach to encouraging private sector funding for infrastructure projects is through a "National Infrastructure Bank." This would be a new federal entity that provides a combination of direct funding, loans, and guarantees to entice private sector participation, as a complement to other public-private funding instruments like municipal bonds.[20] The Progressive Policy Institute has previously written in support of a federal funding facility, both as a way to depoliticize project selection, and as a way to leverage public funding to entice more private capital to finance transportation infrastructure projects.[21]

The latest attempt to establish a federal program to fund transportation infrastructure was as in November 2013. A group of bipartisan U.S. Senators, led by Senator Mark Warner, introduced legislation that would establish a $10 billion facility to fund selected infrastructure projects at the state and local level. As with previous financing attempts, the "BRIDGE Act" would fund no more than 49 percent of a project as to encourage private finance participation.[22]

Unfortunately, to date, every Congressional proposal to establish an infrastructure bank or funding facility, strongly endorsed by President Obama, has gone nowhere. President Obama's newly announced 2015 budget includes an additional $300 billion for transportation infrastructure spending over the next four years.[23] It remains to be seen, however, if this latest proposal will have more success.

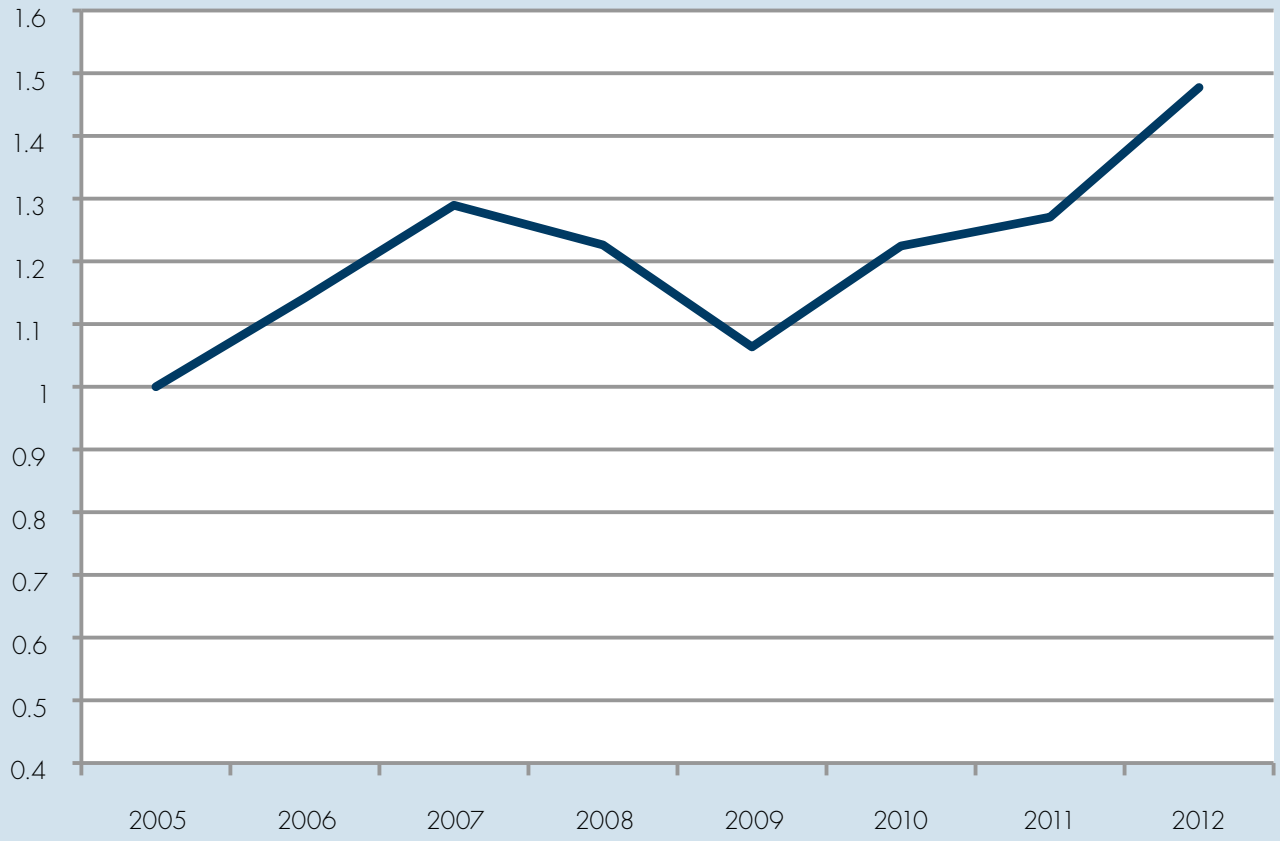
AN ESSENTIAL DISTINCTION

Until now we have focused on transportation infrastructure, and the critical lack of public and private investment in our nation's bridges and roads. However, not all types of growth-enhancing investment are historically low and falling. Another form of investment garnering much attention in today's data-driven economy, broadband investment, is actually quite high.

Certainly investment in maintaining and improving our nation's broadband networks is also an important part of a high-growth strategy. Access to broadband is critical to future economic growth and job creation, and universal adoption is a priority for the Obama administration.[24]

Why is it then that investment in broadband is rising while investment in transportation infrastructure is falling? The essential distinction

FIGURE 4: ON THE RISE: REAL FIXED INVESTMENT IN PRIVATE COMMUNICATIONS EQUIPMENT (2005=1)



Source: BEA, PPI

to make between transportation infrastructure and broadband lies in private sector leadership. Transportation infrastructure is inherently a public good, and as such, is not as financially viable an investment as privately-owned broadband networks.

Whereas the private sector does not invest in transportation infrastructure, it does invest in broadband. In fact, the ongoing revolution in high-speed broadband would not be possible without extensive private sector investment in developing and deploying high-speed networks. Heavy demand for data-driven services has led to constant investment in ever-faster broadband connections, and this demand is forecasted to continue rising.[25] It is the massive private investment in mobile broadband that made the United States the global leader in adoption of 4G/LTE mobile broadband.[26] Private investment is what led to fixed fiber broadband speeds topping out at one gigabit per second.

Further, with the deployment of these ever-faster fixed and mobile broadband networks, private sector investment in broadband continues to rise. One estimate placed private investment in broadband networks totaled $1.2 trillion from 1996 through 2011.[27] A 2013 White House report suggests over $250 billion has been privately

invested in wired and wireless broadband networks since 2009, and estimates $35 billion will be privately invested in 2013 alone.[28]

As PPI has previously documented, telecommunications and cable companies are among the top companies investing in America.[29] In fact, of the top 25 companies on our list for 2013, six were telecommunications and cable companies—AT&T, Verizon, Comcast, Sprint, Time Warner Cable, and CenturyLink. Public documents show they invested in deployment of broadband networks, new equipment, and even public Wi-Fi hotspots. Together, we estimate these 6 companies invested $50 billion over the last year, one-third of the total money invested.

> Whereas the private sector does not invest in transportation infrastructure, it does invest in broadband.

Private investment in broadband is not limited to telecommunications and cable companies. Over the last few years, companies typically seen as hardware and internet companies have also announced their own investments in broadband networks. For example, Google has built out its own fiber broadband networks in 2 cities with speeds of one gigabit per second,[30] and recently announced a contest to build out Google Fiber in another 34 cities.[31] Apple has also recently begun to build out its own broadband network, to obtain more control over its digital content distribution.[32]

We consider investment in communications equipment illustrative of the impressive rise in private investment. We use the investment in communications equipment as a measure of private investment in broadband because a large part of the cost to deploy and operate a broadband network is in the equipment.

Official data shows private fixed investment in communications equipment is up almost 50 percent since 2005, in real terms. As shown in Figure 4, private investment in communications equipment has been continuously rising, and in real terms has more than recovered from the recessionary drop.

BROADBAND INVESTMENT ALONE ISN'T ENOUGH

As crucial as it is, broadband investment alone will not be enough to sustain a high-growth economy. Moreover, it makes little economic sense for governments to compete with the private sector in investing in broadband while allowing their transportation infrastructure to deteriorate.

As with transportation infrastructure, recent empirical research also shows investment in broadband generates positive economic spillovers. However, this recent broadband research also leads to a noteworthy conclusion: that the economic boost resulting from increasing broadband investment is not so much larger than the economic boost from increasing investment in transportation infrastructure. This implies that, at least on a practical level, there is not a strong economic case for the government to invest more heavily in one type of investment over the other.

The greatest economic benefit from investment in broadband comes from the increase in broadband adoption that results from deploying new or faster broadband networks. In a 2011 study the OECD explained the ubiquitous impact broadband can have on the economy:

> Broadband, when combined with ICTs [information and communication technologies], has many channels through which its effects can operate. Direct effects result from investments in the technology and rolling out the infrastructure itself. Indirect effects come from all aspects of economic activity affected by broadband and which drive economic growth and prosperity, e.g. firm efficiency and increased productivity, reduced costs, innovation, globalisation, and new employment opportunities resulting from the gains achieved.[33]

There are significant methodological challenges associated with estimating a broadband multiplier. A 2012 review of research by the International Telecommunications Union (ITU) pointed out that the dynamic and relatively recent nature of the broadband boom makes the data collection necessary for such estimates difficult. The study also suggests that broadband multipliers are not constant, and that they reach a "saturation point" at which the positive marginal impact declines.[34]

We must also note that most of the empirical research connecting broadband to economic growth does so by looking at changes in broadband penetration and adoption. That is, most research measuring the economic impact of broadband is based on the increase in broadband access and adoption that results from broadband network investment, as opposed to the actual building of broadband networks.

Still, the existing range of estimates for the economic impact of broadband are generally positive. A 2009 study of high-income economies by Christine Qiang, Carlo Rossotto, and Kaoru Kimura of the World Bank found an overall sizeable economic impact. Through an examination of data over 1980-2006, the study concluded that a 10 percent increase in broadband penetration led to an additional 1.21 percent in per capita economic output.[35]

> Broadband investment alone will not be enough to sustain a high-growth economy.

A large body of empirical work on broadband multipliers has also focused on measuring the impact of increased broadband access on employment, finding a positive direct and indirect impact. A 2007 landmark study by Robert Crandall, William Lehr, and Robert Litan of Brookings examined broadband penetration data over 2003-2005 and found a positive, causal effect on employment. The change in economic output from increased broadband deployment was not statistically significant; however, as highlighted above, the economic importance of broadband has increased dramatically since the author's data sample ended in 2005.[36]

Another study by Raul Katz of the Columbia Business School in 2009 estimated the direct and indirect jobs stemming from broadband funding in the American Reinvestment and Recovery Act (ARRA), both from broadband network deployment and from the resulting increase in broadband penetration. Using standard input-output analysis, he found broadband stimulus investment could result in 127,800 jobs created over four years. Given a total estimated $6.4 billion in stimulus funding over 2009-2012, this translates to about 20 jobs per $1 million.[37]

The positive economic spillovers of investment in both transportation infrastructure and broadband demonstrate that both worthy investments. But this does not resolve the fundamental question: Investment by whom? Our reading of the evidence suggests that, because private investment in broadband is robust, governments at all levels should concentrate their resources on modernizing transportation infrastructure.

STATE AND LOCAL GOVERNMENT INVESTMENT IN BROADBAND

Many state and local governments nonetheless are interested in investing in broadband. A July 2013 survey of senior managers in state and local government by the Governing Exchange found 70 percent believed broadband networks should be regulated and operated as a public utility—essentially, a public good.[38] Moreover, about 60 percent of the respondents believed the government should play an active role in the deployment of future networks, with almost one-quarter reporting a plan or proposal for a public broadband network was in the works.

According to MuniNetworks, an organization that tracks publicly-owned broadband networks, the number of local governments building out their own broadband networks is rising. The most recent estimates show over 180 local governments

have some publicly-owned fiber service available to residents, while an additional 89 municipalities having complete fiber coverage and 74 municipalities having complete cable coverage.[39] Of these, 40 municipalities have deployed a broadband network with the highest level speed currently available, one gigabit. Most publicly-owned networks currently are located in the Southeast and Midwest regions of the country, and in Washington State. The data also shows clusters of publicly-owned networks were funded as part of a government stimulus projects.

However, the success of publicly-owned broadband networks has been mixed. The upfront cost and time associated with building out a network can be quite high. For example, Chattanooga's high-speed broadband network, which serves a population of 167,000, cost about $300 million.[40] The smaller city of Monticello, Minnesota, found the cost of operating its municipal broadband network too high, and turned it over to a private operator.[41] Given the high fixed costs of deploying, upgrading, and maintaining broadband networks, it may be harder for smaller governments to get positive returns on their investment, especially when private investment is available.

STATE AND LOCAL GOVERNMENTS SHOULD INVEST MORE IN TRANSPORTATION INFRASTRUCTURE

It is certainly understandable that state and local governments are tempted to invest in broadband networks, given the importance of broadband to future economic growth. The emphasis on broadband is surely influenced by the ongoing revolution in high-speed broadband, and the objectives laid out in the 2010 National Broadband Plan.[42]

However, it is clear from today's slow-growth economy that investment in broadband alone is not enough to hasten the pace of recovery. A more balanced economic recovery requires more investment in both traditional transportation infrastructure and broadband.

Yet the formal winding down of ARRA stimulus funding has left state and local governments with constrained budgets. New data from the National Association of State Budget Officers (NASBO) shows total state spending actually fell in 2012 for the first time in 26 years. In 2013, NASBO predicts only a modest increase as states are in the process of rebalancing their budgets post-recession and post-ARRA.[43] The relatively low level of transportation infrastructure funding from the federal government also limits the amount of new projects state and local government can undertake.

> State and local governments should boost their spending on transportation infrastructure if they can.

There are three reasons why state and local governments should boost their spending on transportation infrastructure if they can. First, as previously explained, organizing the provision of public goods is inherently a public rather than a private responsibility. By increasing public infrastructure investment, through additional federal, state, and local funding allocation, state and local governments could actually encourage more private investment in such projects. For example, private investment could be encouraged through greater use of enhanced public private partnerships (PPP).

Second, increased public investment in broadband threatens to crowd out private investment. As PPI has previously documented, private domestic investment in broadband is already strong. If a state or local government chooses to invest in a market that already has private competition, it risks crowding out or displacing potential future private investment. Certainly, this is less of an issue in low-density areas where private broadband investment may be minimal.

Further, by investing in an area that is already privately competitive, state and local governments will be held to the existing pricing structure in

that market. This is potentially problematic if the current price for service is below the break-even amount required to operate the network, as was the case in Monticello.[44] The result could be a reduced economic boost from both the public and private investment—or worse, the public investment could have negative economic returns.

Third, the recent empirical literature shows the return on investment from transportation infrastructure is quite high. The body of independent post-recession analyses we reviewed earlier in this paper indicates a new emerging consensus that investment in roads, bridges, and highways will generate positive economic returns, directly and indirectly. Specifically, these studies find that every $1 invested in transportation infrastructure will boost economic output by $1.5 to $2.

In fact, a 2013 study by J. Bradford DeLong and Laura D. Tyson of the University of California-Berkley found public investment in transportation infrastructure could play a powerful role in stimulating U.S. growth in a post-recession economy. In the study, the authors examined the impact of fiscal spending in 2012 relative to 2007.[45] They concluded that the previous way of thinking, that monetary policy crowds out any benefit of fiscal policy, was no longer applicable in a post-recession U.S. economy. The authors argued that the government could stimulate economic growth through targeted spending, more specifically, on transportation infrastructure:

> "The possibility that the slow recovery will depress future potential output growth through hysteresis effects makes the case even more compelling, particularly for additional government investment spending on infrastructure."[46]

State and local governments, however, cannot repair the current deficit in transportation infrastructure alone. Closing the investment gap will also require increased federal support. Just as public funding could be used to leverage private investment, federal funding could be used to encourage additional state and local investment. Federal assistance for large and ongoing transportation infrastructure projects, for example, mass public transit, could be the deciding factor for state and local governments to invest more now rather than later.

The case is clear for more public investment in transportation infrastructure as part of a high-growth strategy. By addressing the critical need for more transportation infrastructure investment, federal, state and local governments would not only enhance the competitiveness of our nation's business climate and improve the quality of living for its population, but it would do so in a way that generates a positive economic return.

We conclude with a pertinent observation by the great liberal economist, John Maynard Keynes:

> "The most important agenda of the State relate not to those activities which private individuals are already fulfilling, but to those functions which fall outside the sphere of the individual, to those decisions which are made by no one if the state does not make them. The important thing for government is not to do things which individuals are doing already, and to do them a little better or a little worse; but to do those things which at present are not done at all."[47]

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Progressive Policy Institute
1101 14th St. NW
Suite 1250
Washington, DC 20005

Tel 202.525.3926
Fax 202.525.3941
Email info@ppionline.org
www.progressivepolicy.org